

The Older Adult

Older adults now number more than 25 million people in the United States and are expected to reach 80 million by 2050.¹ These seniors will live longer than previous generations: life span at birth is currently 79 years for women and 74 years for men. Those older than 85 years are projected to increase to 5% of the U.S. population within 40 years. Hence, the “demographic imperative” is to maximize not only the life span but also the “health span” of our older population, so that seniors maintain full function for as long as possible, enjoying rich and active lives in their homes and communities.



Clinicians now recognize frailty as one of society’s common myths about aging—more than 95% of Americans older than 65 years live in the community, and only 5% reside in long-term care facilities.^{1,2} Over the past 20 years, seniors actually have become more active and less disabled. These changes call for new goals for clinical care—“an informed activated patient interacting with a prepared proactive team, resulting in high quality satisfying encounters and improved outcomes”³—and a distinct set of clinical attitudes and skills.

Assessing the older adult presents special opportunities and special challenges. Many of these are quite different from the disease-oriented approach of history taking and physical examination for younger patients: the focus on healthy or “successful” aging; the need to understand and mobilize family, social, and community supports; the importance of skills directed to functional assessment, “the sixth vital sign”; and the opportunities for promoting the older adult’s long-term health and safety.

In this chapter, we review the physiologic changes of aging in *Anatomy and Physiology*, as well as the heterogeneity of the aging process and the challenges of distinguishing normal from abnormal physical findings. Then follows *The Health History*, which begins with the Approach to the Patient. This section discusses how to adjust the office environment and adapt the content and pace of the interview to the older patient; the varying meanings and significance of symptoms in older adults, especially when linked to one of the geriatric syndromes; and the cultural dimensions of aging. The next section, Special Areas of Concern when Assessing Common or Concerning Symptoms, explores the importance of assessing activities of daily living, medications, nutrition, acute and chronic pain, lifestyle behaviors such as alcohol use and smoking, and advance directives and palliative care. *Health Promotion and Counseling* provides guidelines for health screening in older adults, including recommendations for topics such as vision and hearing, exercise, immunizations, household safety, cancer, depression, dementia, and elder mistreatment. *Techniques of Examination* discusses Functional Assessment: The “Sixth Vital Sign,” and provides an efficient tool for office evaluation, the 10-Minute Geriatric Screener. Then follows the Physical Examination of the Older Adult, which builds on the techniques you already have learned for physical examinations in general, but highlights special aspects for older patients when surveying general appearance, measuring vital signs, and completing each regional examination. *Recording Your Findings* contains a sample of the written history and physical examination of the older adult.

ANATOMY AND PHYSIOLOGY

Primary aging reflects changes in physiologic reserves over time that are independent of and not induced by any disease. These changes are especially likely to appear during periods of stress, such as exposure to fluctuating temperatures, dehydration, or even shock. Decreased cutaneous vasoconstriction and sweat production can impair responses to heat; declines in thirst may delay recovery from dehydration; and the physiologic drops in maximum cardiac output, left ventricular filling, and maximum heart rate seen with aging may impair the response to shock.

At the same time, the aging population displays marked heterogeneity. Investigators have identified vast differences in how people age and have distinguished “usual” aging, with its complex of diseases and impairments, from “successful” aging. “Successful aging” occurs in those people who escape de-

bilitating disease entirely and maintain healthy lives late into their 80s and 90s. Studies of centenarians show that genes account for approximately 20% of the probability of living to 100, with healthy lifestyles accounting for approximately 20% to 30%.⁴⁻⁶

These findings provide compelling evidence for promoting optimal nutrition, strength training and exercise, and daily function for older adults to delay unnecessary depletion of physiologic reserves.

Vital Signs

Blood Pressure. In Western societies, systolic blood pressure tends to rise from childhood through old age. The aorta and large arteries stiffen and become atherosclerotic. As the aorta becomes less distensible, a given stroke volume causes a greater rise in systolic blood pressure; *systolic hypertension* with a *widened pulse pressure* often ensue. Diastolic blood pressure stops rising at about the sixth decade. At the other extreme, some elderly people develop a tendency toward *postural (orthostatic) hypotension*—a sudden drop in blood pressure when they rise to standing.

Heart Rate and Rhythm. In older adults, resting heart rate remains unchanged, but pacemaker cells decline in the sinoatrial node, as does maximal heart rate, affecting response to physiologic stress.⁷

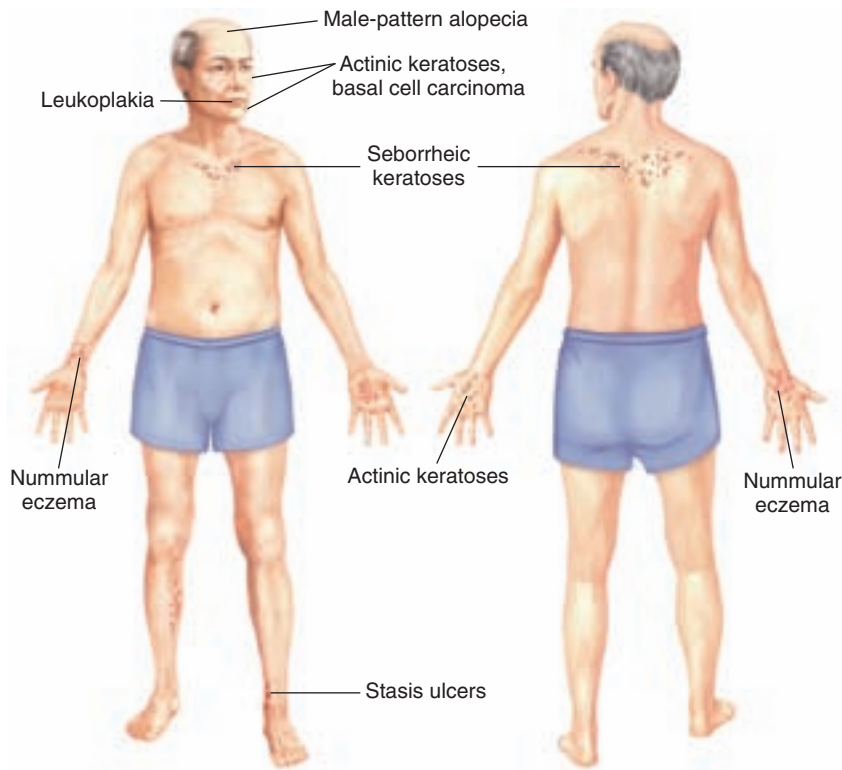
Elderly people are more likely to have abnormal heart rhythms such as atrial or ventricular ectopy. Asymptomatic rhythm changes are generally benign. Like postural hypotension, however, they may cause *syncope*, or temporary loss of consciousness.

Respiratory Rate and Temperature. Respiratory rate is unchanged, but changes in temperature regulation lead to susceptibility to *hypothermia*.

Skin, Nails, and Hair. With age, the skin wrinkles, becomes lax, and loses turgor. The vascularity of the dermis decreases, causing lighter skin to look paler and more opaque. Skin on the backs of the hands and forearms appears thin, fragile, loose, and transparent. There may be purple patches or macules, termed *actinic purpura*, that fade over time. These spots and patches come from blood that has leaked through poorly supported capillaries and spread within the dermis.

Nails lose luster with age and may yellow and thicken, especially on the toes.

Hair undergoes a series of changes. Scalp hair loses its pigment, producing the well-known graying. Hair loss on the scalp is genetically determined. As early as age 20, a man's hairline may start to recede at the temples; hair loss at the vertex follows. In women, hair loss follows a similar, but less severe pattern. In both sexes, the number of scalp hairs decreases in a generalized pattern, and the diameter of each hair gets smaller. Less familiar, but probably more important clinically, is normal hair loss elsewhere on the body: the trunk, pubic areas, axillae, and limbs. As women reach age 55, coarse facial hairs appear on the chin and upper lip, but do not increase further thereafter.



Many of the changes described here pertain to lighter-skinned people and do not necessarily apply to those with darker skin tones. For example, Native American men have relatively little facial and body hair compared with lighter-skinned men and should be evaluated according to their own norms.

Head and Neck. The eyes, ears, and mouth bear the brunt of old age. The fat that surrounds and cushions the eye within the bony orbit may atrophy, allowing the eyeball to recede somewhat. The skin of the eyelids becomes wrinkled, occasionally hanging in loose folds. Fat may push the fascia of the eyelids forward, creating soft bulges, especially in the lower lids and the inner third of the upper lids. Because their eyes produce fewer lacrimal secretions, aging patients may complain of dry eyes. The corneas lose some of their luster.

The pupils become smaller, which makes it more difficult to examine the ocular fundi. The pupils may also become slightly irregular but should continue to respond to light and near effort.

Visual acuity remains fairly constant between 20 and 50 years of age. It diminishes gradually until about age 70 and then more rapidly. Nevertheless, most elderly people retain good to adequate vision (20/20 to 20/70 as measured by standard charts). Near vision, however, begins to blur noticeably for virtually everyone. From childhood on, the lens gradually loses its elasticity, and the eye grows progressively less able to accommodate and focus on nearby objects. Ensuing *presbyopia* usually becomes noticeable during the fifth decade.

Aging affects the lenses and increases risk for *cataracts*, *glaucoma*, and *macular degeneration*. Thickening and yellowing of the lenses impair the passage of light to the retinas, requiring elderly people to need more light for reading and doing fine work. Cataracts affect 1 in 10 people in their 60s and 1 in 3 people in their 80s. Because the lens continues to grow over the years, it may push the iris forward, narrowing the angle between iris and cornea and increasing the risk of *narrow-angle glaucoma* (p. 215).

Acuity of hearing, like that of vision, usually diminishes with age. Early losses, which start in young adulthood, involve primarily the high-pitched sounds beyond the range of human speech and have relatively little functional significance. Gradually, loss extends to sounds in the middle and lower ranges. When a person fails to catch the upper tones of words while hearing the lower ones, words sound distorted and are difficult to understand, especially in noisy environments. Hearing loss associated with aging, known as *presbycusis*, becomes increasingly evident, usually after age 50.

Diminished salivary secretions and a decreased sense of taste accompany aging, but medications or various diseases probably contribute considerably to such changes. Teeth may wear down, become abraded, or be lost to dental caries or other conditions over time (pp. 235–236). Periodontal disease is the chief cause of tooth loss in most adults (p. 235). If a person has no teeth, the lower portion of the face looks small and sunken, with accentuated “purse-string” wrinkles radiating from the mouth. Overclosure of the mouth may lead to maceration of the skin at the corners, a condition known as *angular cheilitis* (p. 230). The bony ridges of the jaws that once surrounded the tooth sockets are gradually resorbed, especially in the lower jaw.

The frequency of palpable cervical nodes gradually diminishes with age and, according to one study, falls below 50% between 50 and 60 years of age. In contrast to the lymph nodes, the submandibular glands become easier to feel.

Thorax and Lungs. As people age, their capacity for exercise decreases. The chest wall becomes stiffer and harder to move, respiratory muscles may weaken, and the lungs lose some of their elastic recoil. Lung mass declines, and residual volume increases. The speed of breathing out with maximal effort gradually diminishes, and cough becomes less effective.

Skeletal changes associated with aging may accentuate the dorsal curve of the thoracic spine, producing kyphosis and increasing the anteroposterior diameter of the chest. The resulting “barrel chest,” however, has little effect on function.

Cardiovascular System. Cardiovascular findings vary significantly with age. Review the effects of aging on blood pressure and heart rate described on p. 292. Aging also affects vascular sounds in the neck and adds to the significance of extra heart sounds like S_3 and S_4 and of selected systolic murmurs.

Neck Vessels. Lengthening and tortuosity of the aorta and its branches occasionally result in kinking or buckling of the carotid artery low in the neck, especially on the right. The resulting pulsatile mass, occurring chiefly in hypertensive women, may be mistaken for a carotid aneurysm—a true dilatation of the artery. A tortuous aorta occasionally raises the pressure in the jugular veins on the left side of the neck by impairing their drainage within the thorax.

In older adults, systolic bruits heard in the middle or upper portions of the carotid arteries suggest, but do not prove, partial arterial obstruction from atherosclerosis. In contrast, cervical bruits in younger people are usually innocent.

Extra Heart Sounds— S_3 and S_4 . A physiologic *third heart sound*, commonly heard in children and young adults, may persist as late as age 40, especially in women. After age 40, however, an S_3 strongly suggests congestive heart failure from volume overload of the left ventricle, as in coronary artery disease or valvular heart disease (e.g., mitral regurgitation). In contrast, a *fourth heart sound* is seldom heard in young adults other than well-conditioned athletes. An S_4 can be heard in otherwise healthy older people, but often suggests decreased ventricular compliance and impaired ventricular filling. (See Table 8-7, Extra Heart Sounds in Diastole, p. 330.)

Cardiac Murmurs. Middle-aged and older adults commonly have a *systolic aortic murmur*. This murmur is detected in approximately one third of people close to age 60, and in well more than half of those reaching 85 years. Aging thickens the bases of the aortic cusps with fibrous tissue. Calcification follows, resulting in audible vibrations. Turbulence produced by blood flow into a dilated aorta may further augment this murmur. In most people, the process of fibrosis and calcification—known as *aortic sclerosis*—does not impede blood flow. In some, the aortic valve leaflets become calcified and immobile, resulting in *aortic stenosis* and outflow obstruction. A brisk carotid upstroke may help distinguish aortic sclerosis from aortic stenosis, with its delayed upstroke, but clinical differentiation between aortic sclerosis and aortic stenosis may be difficult. Both carry increased risk for cardiovascular morbidity and mortality.

Similar changes alter the mitral valve, usually approximately one decade later than aortic sclerosis. Calcification of the mitral valve annulus, or valve ring, impedes normal valve closure during systole, causing the systolic murmur of *mitral regurgitation*. This murmur may become pathologic as volume overload increases in the left ventricle.

Breasts and Axillae. The normal adult breast may be soft, but also granular, nodular, or lumpy. This uneven texture represents physiologic nodularity. It may be bilateral and palpable throughout the breast or only in parts of it. With aging, the female breasts tend to diminish as glandular tissue atrophies and is replaced by fat. Although the proportion of fat increases, its total amount may decrease. The breasts often become flaccid and more pendulous. The ducts surrounding the nipple may become more easily palpable as firm, stringy strands. Axillary hair diminishes.

Abdomen. During the middle and later years, fat tends to accumulate in the lower abdomen and near the hips, even when total body weight is stable. This accumulation, together with weakening of the abdominal muscles, often produces a potbelly. Occasionally a person notes this change with alarm and interprets it as fluid or evidence of disease.

Aging may blunt the manifestations of acute abdominal disease. Pain may be less severe, fever is often less pronounced, and signs of peritoneal inflammation, such as muscular guarding and rebound tenderness (p. 377), may be diminished or even absent.

Male and Female Genitalia, Anus, Rectum, and Prostate. As men age, sexual interest appears to remain intact, although frequency of intercourse declines. Several physiologic changes accompany decreasing testosterone levels. Erections become more dependent on tactile stimulation and less responsive to erotic cues. The penis decreases in size, and the testicles drop lower in the scrotum. Protracted illnesses, more than aging, lead to decreased testicular size. Pubic hair may decrease and become gray. Erectile dysfunction, or the inability to have an erection, affects approximately 50% of older men. It usually is caused by hypogastric-cavernous arterial insufficiency or venous leakage through the subtunical venules.⁸

In women, ovarian function usually starts to diminish during the fifth decade; on average, menstrual periods cease between 45 and 52 years of age. As estrogen stimulation falls, many women experience hot flashes, sometimes for up to 5 years. Symptoms range from flushing, sweating, and palpitations to chills and anxiety. Sleep disruption and mood changes are common. Women may report vaginal dryness, urge incontinence, or dyspareunia. Several vulvovaginal changes occur: pubic hair becomes sparse as well as gray; the labia and clitoris become smaller. The vagina narrows and shortens, and the vaginal mucosa becomes thin, pale, and dry, with loss of lubrication. The uterus and ovaries diminish in size. Within 10 years after menopause, the ovaries are usually no longer palpable. The suspensory ligaments of the adnexa, uterus, and bladder may also relax. Sexuality and sexual interest are often unchanged, particularly in the absence of partner issues, partner loss, or unusual work or life stress.⁹

In men, proliferation of prostate epithelial and stromal tissue, termed benign prostatic hyperplasia (BPH), begins in the third decade, “yet prostate enlargement results in only about half, and symptoms occur in only about half of men with enlargement.”¹⁰ Symptoms of urinary hesitancy, dribbling, and incomplete emptying can often be traced to causes other than BPH, such as coexisting disease, use of medication, and lower tract abnormalities. Hyperplasia continues to increase prostate volume until the seventh decade then appears to plateau. These changes are androgen dependent.

Peripheral Vascular System. Aging itself conveys relatively few clinically important changes for the peripheral vascular system. Although arterial and venous disorders, especially atherosclerosis, do affect older people

more frequently, they probably cannot be considered part of normal aging. Peripheral arteries tend to lengthen, become tortuous, and feel harder and less resilient. These changes do not necessarily indicate atherosclerosis, however, or pathologic changes in the coronary or cerebral vessels.

The common changes in skin, nails, and hair discussed earlier are not specific for arterial insufficiency, even though they are classically associated with it. Loss of arterial pulsations is not typical, however, and demands careful evaluation. Rarely, in those older than 50 years, the temporal arteries may become subject to giant cell, or temporal, arteritis, leading to loss of vision in 15% of those affected, and to complaints of headache and jaw claudication. Mean age of onset is 72 years. An important concern is possible aneurysm in the abdominal aorta in older adults with abdominal or back pain, especially those who are male, smoke, and have coronary disease.

Musculoskeletal System. Musculoskeletal changes continue throughout the adult years. Soon after maturity, subtle losses in height begin; significant shortening is obvious by old age. Most loss of height occurs in the trunk as intervertebral discs become thinner and the vertebral bodies shorten or even collapse from osteoporosis. Flexion at the knees and hips may also contribute to shortened stature. Alterations in the discs and vertebrae also contribute to the kyphosis of aging and increase the anteroposterior diameter of the chest, especially in women. For these reasons, the limbs of an elderly person tend to look long in proportion to the trunk.

With aging, skeletal muscles decrease in bulk and power, and ligaments lose some of their tensile strength. Range of motion diminishes, partly because of osteoarthritis.

Nervous System. Aging may affect all aspects of the nervous system, from mental status to motor and sensory function and reflexes. Age-related losses can exact a heavy toll. Older adults experience the death of loved ones and friends, retirement from valued employment, diminution in income, decreased physical capacities including impairments in vision and hearing, and often growing social isolation. Moreover, the aging brain experiences biologic changes. Brain volume and the number of cortical brain cells decrease, and both microanatomical and biochemical changes have been identified. Nevertheless, most adults adapt well to getting older. They maintain self-esteem, adapt to their changing capacities and circumstances, and eventually prepare themselves for death.

Most elderly people do well on the mental status examination, but selected impairments may become evident, especially at advanced ages. Many older people complain about their memories. “Benign forgetfulness” is the usual explanation and may occur at any age. This term refers to difficulty recalling the names of people or objects or certain details of specific events. Identifying this common phenomenon, when appropriate, may assuage worries about Alzheimer’s disease. In addition to this circumscribed forgetfulness, elderly people retrieve and process data more slowly, and they take more

time to learn new material. Their motor responses may slow, and their ability to perform complex tasks may become impaired.

Frequently, the clinician must try to distinguish these age-related changes in the nervous system from manifestations of specific mental disorders whose prevalence increases with aging, such as depression and dementia. Sorting out these ailments from medical complaints may be difficult, particularly because both mood disturbances and cognitive changes can alter the patient's ability to recognize or report symptoms. Older patients are also more susceptible to delirium, a temporary state of confusion that may be the first clue to infection or problems with medications. The clinician must learn to recognize these conditions promptly and to protect the patient from harm. (Review Chapter 16, *The Nervous System: Mental Status and Behavior*, pp. 573–593; Table 16-1, p. 590; and Table 20-1, p. 873.)

In assessing the nervous system of an older person, it is sometimes difficult to distinguish the changes of normal aging from those of age-related or other diseases. Some findings that would be abnormal in younger people, however, occur so often in the elderly that they can be attributed to aging alone, such as the changes in hearing, vision, extraocular movements, and pupillary size, shape, and reactivity described earlier.

Changes in the motor system are common. Older adults move and react with less speed and agility than younger ones, and skeletal muscles decrease in bulk. The hands of an aged person often look thin and bony as a result of atrophy of the interosseous muscles, causing muscle wasting in the backs of the hands that leaves concavities or grooves. As illustrated on page 617, this change may first appear between the thumb and the hand (1st and 2nd metacarpals) but may also be seen between the other metacarpals. Small muscle wasting may also flatten the thenar and hypothenar eminences of the palms. Arm and leg muscles can also show signs of atrophy, exaggerating the apparent size of adjacent joints. Muscle strength, though diminished, is relatively well maintained.

Occasionally, an older person develops a benign essential tremor in the head, jaw, lips, or hands that may be confused with parkinsonism (p. 653). Unlike parkinsonian tremors, however, benign tremors are slightly faster and disappear at rest, and there is no associated muscle rigidity.

Aging may also affect vibratory sense and reflexes. Older adults frequently lose some or all vibration sense in the feet and ankles (but not in the fingers or over the shins). Less commonly, position sense may diminish or disappear. The gag reflex may be diminished or absent. Abdominal reflexes may diminish or disappear. Ankle reflexes may be symmetrically decreased or absent, even when reinforced. Less commonly, knee reflexes are similarly affected. Partly because of musculoskeletal changes in the feet, the plantar responses become less obvious and more difficult to interpret. If other neurologic abnormalities accompany these changes, or if atrophy and reflex changes are asymmetric, you should search for an explanation other than age alone.

THE HEALTH HISTORY

APPROACH TO THE PATIENT

As you talk with older adults, begin to refine your usual techniques for obtaining the Health History. Your demeanor should convey respect, patience, and cultural awareness. Be sure to address patients by their last name.

Approach to the Older Adult Patient

- Adjusting the office environment
- Shaping the content and pace of the visit
- Eliciting symptoms
- Addressing the cultural dimensions of aging

Adjusting the Office Environment. First, take the time to adapt the environment of the office, hospital, or nursing home to ensure the patient's ease in responding to your questions. Recall the physiologic changes in temperature regulation, and make sure the office is neither too cool nor too warm. Brighter lighting helps compensate for changes in lens proteins—a well-lit room allows the older adult to see your facial expressions and gestures. Face the patient directly, sitting at eye level.

More than 50% of older adults have hearing deficits, especially loss of high-tone discrimination, making a comfortable room, free of distractions or noise, conducive to accurate reactions and responses. In the hospital setting, ask about turning off the radio or television before starting your discussions. If appropriate, consider using a “pocket talker,” a microphone that amplifies your voice and connects to an earpiece inserted by the patient. Try to adopt low speaking tones, and make sure the patient is appropriately using glasses, hearing aids, and dentures to assist with communication. Patients with quadriceps weakness benefit from chairs with higher seating and a wide stool with a handrail leading up to the examining table.¹¹

Shaping the Content and Pace of the Visit. With older adults, you will often need to alter the traditional format of the initial or follow-up visit.



From middle age on, people begin to measure their lives in terms of years left rather than years lived. Older people often reminisce about the past and reflect on previous experiences. Listening to this process of life review provides important insights and helps you support patients as they work through painful feelings or recapture joys and accomplishments.

At the same time, it is important to balance the need to assess complex problems with the patient's endurance and possible fatigue. To provide enough time to fully listen to the patient but prevent him or her from becoming exhausted, make ample use of brief screening tools (see p. 858), information from home visits and the medical record, and reports from family members, caretakers, and allied health disciplines. Consider dividing the initial assessment into two visits. Two or more shorter visits may be less fatiguing and more productive because older patients frequently need more time to respond to questions, and their explanations may be slow and lengthy.

Eliciting Symptoms in the Older Adult. Eliciting the history from older adults calls for the clinician to be careful and astute: patients may accidentally or purposefully underreport symptoms; the presentation of acute illnesses may be different; common symptoms may mask a geriatric syndrome; patients may have cognitive impairment.

Older patients tend to overestimate healthiness even when increasing disease and disability are obvious.¹¹ It is best to start the visit with open-ended questions like “How can I help you today?” Older patients may be reluctant to report their symptoms. Some are afraid or embarrassed; others try to avoid medical expenses or the discomforts of diagnosis and treatment. Still others overlook their symptoms, thinking them to be merely part of aging, and simply forget about them. To reduce the risk for late recognition and delayed intervention, you may need to adopt more directed questions or health screening tools, as well as consult with family members and caretakers.

Acute illnesses present differently in older adults than in younger age groups. Older patients with infections are less likely to have fever. In those with myocardial infarction, reports of chest pain fall with increasing age, and complaints of shortness of breath, syncope, stroke, and acute confusion become more common.¹² Older patients with hyperthyroidism and hypothyroidism present with fewer symptoms and signs. In hyperthyroidism, fatigue, weight loss, and tachycardia comprise the most common symptom triad in patients older than 50 years. Older patients are more likely to have anorexia and atrial fibrillation; heat intolerance, increased sweating, and hyperreflexia are considerably rarer.¹³ In hypothyroidism, older patients present with fewer symptoms and signs. Fatigue and weakness are common but notably nonspecific; the usual chilliness, paresthesias, weight gain, and cramps found in younger patients are uncommon.¹⁴

Managing an increasing number of chronic conditions calls for recognizing the symptom clusters typical of different *geriatric syndromes*. Geriatric syndromes are characterized by the interaction and probable synergism among

multiple risk factors, for example, falls, dizziness, depression, urinary incontinence, and functional impairment.¹⁵ Student clinicians need to learn about these syndromes because one symptom may relate to several others in a pattern of which the patient is unaware. Searching for the usual “unifying diagnosis” may pertain to fewer than 50% of older adults.¹⁶

Finally, the student must be knowledgeable about how cognitive impairment affects the patient’s history. Evidence suggests that when older patients do report symptoms, their reports are reliable and contain more symptoms than reports from family or collateral sources.^{17–20} When compared with unimpaired counterparts, even elders with mild cognitive impairment provide sufficient history to reveal concurrent disorders.¹⁷ Use simple sentences with prompts about necessary information. For patients with more severe impairments, confirm key symptoms with family members or caretakers in the patient’s presence and with his or her consent.

Learn to recognize and avoid stereotypes that keep you from viewing each patient as a unique person with a treasure of life experiences. When listening to them, discover how these patients see themselves and their situations, as well as their priorities, goals, and coping skills. Such knowledge strengthens your alliance with older patients as you collaborate on plans for care and treatment.

TIPS FOR COMMUNICATING EFFECTIVELY WITH OLDER ADULTS

- Provide a well-lit, moderately warm setting with minimal background noise and safe chairs and access to the examining table.
- Face the patient and speak in low tones; make sure the patient is using glasses, hearing devices, and dentures if needed.
- Adjust the pace and content of the interview to the stamina of the patient; consider two visits for initial evaluations when indicated.
- Allow time for open-ended questions and reminiscing; include family and caretakers when needed, especially if the patient has cognitive impairment.
- Make use of brief screening instruments, the medical record, and reports from allied disciplines.
- Carefully assess symptoms, especially fatigue, loss of appetite, dizziness, and pain, for clues to underlying disorders.
- Make sure written instructions are in large print and easy to read.

Addressing Cultural Dimensions of Aging. Clinicians must acquire new knowledge and awareness about the health beliefs and culture that shape the older adult’s response to illness and the health care system. Between 1990 and 2000, Hispanics, African Americans, Native Americans, and other ethnic groups accounted for approximately 43% of the total growth of the population.²¹ By 2050, the overall older adult population will increase by 230%, with the minority older adult population growing by 510%.²² The broad cat-

egories used for federal reporting no longer capture the wide array of cultural differences that affect how older adults understand suffering, illness, and decisions about care, ranging from use of alternative therapies to timing of health care visits. Immigrant and refugee groups in the United States with particular health care needs include Vietnamese, Laotians, Haitians, Somalis, Russians and Eastern Europeans, Afghans, and Bosnians.

Cultural differences affect the epidemiology of illness and mental health, the process of acculturation, the specific concerns of the elderly, the potential for misdiagnosis, and disparities in health outcomes.^{22–24} Take a few minutes to review the components of self-awareness needed for cultural competency discussed in Chapter 2 (pp. 55–56). Learn culturally specific ways to show respect to elders and use appropriate nonverbal communication styles. Direct eye contact or handshaking, for example, may not be culturally syntonetic. Identify critical experiences that affect the patient’s outlook and psyche arising from the country of origin or migration history. Ask about spiritual advisors and native healers.

Cultural values particularly affect decisions about the end of life. Elders, family, and even an extended community group may make these decisions with or for the older patient. Such group decision making is in contrast to the patient autonomy and informed consent that many contemporary health care providers value, expect, and automatically assume to be desired by all.²¹ Being sensitive to the stresses of migration and acculturation, using translators effectively (see p. 45), enlisting “patient navigators” from the family and community, and accessing culturally validated assessment tools like the Geriatric Depression Scale are important for empathic care of older adults.²³

SPECIAL AREAS OF CONCERN WHEN ASSESSING COMMON OR CONCERNING SYMPTOMS

Common Concerns

- Activities of daily living
- Instrumental activities of daily living
- Medications
- Nutrition
- Acute and chronic pain
- Smoking and alcohol
- Advance directives and palliative care

As we have seen, symptoms in the older adult can have many meanings and interconnections, as in the geriatric syndromes. Explore the meaning of these symptoms as you would with all patients, and review the Common or Concerning Symptoms sections in previous chapters. For older adults, be sure to place these symptoms in the context of your overall functional assessment. Several areas warrant special attention as you gather the health his-

tory. Approach the following areas with extra thoroughness and sensitivity, always focusing on helping the older adult to maintain optimal well-being and level of function.

Activities of Daily Living. Learning how older adults, especially those with chronic illness, function in terms of daily activities is essential and provides an important baseline for the future. First, assess the patient’s ability for self-care. Ask about his or her capacity to perform the *Activities of Daily Living (ADLs)*—these consist of basic self care abilities—then move on to inquiries about capacity for higher level functions of the *Instrumental Activities of Daily Living (IADLs)* listed below. Can the patient perform these activities independently, does he or she need some help, or is the patient entirely dependent on others?

You may wish to start with an open-ended request like “Tell me about your typical day” or “Tell me about your day yesterday.” Then move to a greater level of detail . . . You got up at 8 AM? How is it getting out of bed? . . . “What did you do next?” Ask how things have changed, who is available for help, and what helpers actually do. Remember that assessing the patient’s safety is one of your priorities.

ACTIVITIES OF DAILY LIVING AND INSTRUMENTAL ACTIVITIES OF DAILY LIVING	
Physical Activities of Daily Living (ADLs)	Instrumental Activities of Daily Living (IADLs)
Bathing	Using the telephone
Dressing	Shopping
Toileting	Preparing food
Transferring	Housekeeping
Continence	Laundry
Feeding	Transportation
Managing money	Taking medicine

Medications. Statistics related to prescription drugs expose the dramatic rationale for obtaining a complete drug history.³ Approximately 80% of older adults have at least one chronic disease and take at least one prescription drug each day. Adults older than 65 receive approximately 30% of all prescriptions. Roughly 30% take more than eight prescribed drugs each day! Older adults have more than 50% of all reported adverse drug reactions causing hospital admission, reflecting pharmacodynamic changes in the distribution, metabolism, and elimination of drugs that place them at increased risk.

Take a thorough medication history, including name, dose, frequency, and indication for each drug. Be sure to explore all components of polypharmacy, including suboptimal prescribing, concurrent use of multiple drugs, under-use, inappropriate use, and nonadherence. Ask about use of over-the-counter medications, vitamin and nutrition supplements, and mood-altering drugs such as narcotics, benzodiazepines, and recreational substances. Assess med-

ications for drug interactions. Be particularly careful when treating insomnia, estimated to occur in approximately 40% of older adults. Increased exercise may be the best remedy. Recall that medications are the most common modifiable risk factor associated with falls. Review strategies for avoiding polypharmacy with your instructors. It is wise to keep the number of drugs prescribed to a minimum. Learn about drug–drug interactions and drugs contraindicated in older adults.^{25,26}

Nutrition. Taking a diet history and using the Rapid Screen for Dietary Intake and the Nutrition Screening Checklist (p. 115) are especially important in older adults. Prevalence of undernutrition increases with age, affecting 5% to 10% of elderly outpatients and 30% to 50% of hospitalized elders.²⁷ Those with chronic disease are particularly at risk, especially those with poor dentition, oral or gastrointestinal disorders, depression or other psychiatric illness, and drug regimens that affect appetite and oral secretions. For those underweight elders who give limited histories, the serum albumin is an independent risk factor for all-cause mortality.²⁸

Acute and Chronic Pain. Pain and associated complaints account for 80% of clinician visits. Prevalence of pain may reach 25% to 50% in community-dwelling adults and 40% to 80% in nursing home residents. Pain usually arises from musculoskeletal complaints like back and joint pain.²⁹ Headache, neuralgias from diabetes and herpes zoster, nighttime leg pain, and cancer pain are also common. Older patients are less likely to report pain, leading to undue suffering, depression, social isolation, physical disability, and loss of function.

■ Characteristics of Acute and Chronic Pain	
Acute Pain	Chronic Pain
Distinct onset	Lasts more than 3 months
Obvious pathology	Often associated with psychological or functional impairment
Short duration	Can fluctuate in character and intensity over time
Common causes: postsurgical, trauma, headache	Common causes: arthritis, cancer, claudication, leg cramps, neuropathy, radiculopathy

(Source: Reuben DB, Herr KA, Pacala JT, et al. *Geriatrics at Your Fingertips*: 2004, 6th ed. p. 119. Malden, MA: Blackwell Publishing, Inc., for the American Geriatrics Society, 2004.)

Inquire about pain, now considered “the fifth vital sign,” each time you meet with the older patient. Ask specifically “Are you having any pain right now? How about during the past week?” Learn to distinguish acute pain from chronic pain and thoroughly investigate its cause. Many multidimensional and unidimensional pain scales are available. Unidimensional scales such as the Visual Analog Scale, graphic pictures, and the Verbal 0–10 Scale have all been validated and are easiest to use.²⁹ Study the many modalities of pain relief and which analgesics are most appropriate for older adults.

Smoking and Alcohol. Smoking is harmful at all ages. At each visit, advise elderly smokers to quit. The commitment to stop smoking may take time, but quitting is an important step in reducing risk for heart disease, pulmonary disease, malignancy, and loss of daily function.

An estimated 5% to 10% of adults older than 65 years have alcohol-related problems.³⁰ Lifelong prevalence of alcohol abuse or dependency among community residents older than 65 years ranges from 4% to 8%.³¹ Rates of alcoholism in older patients in hospital, emergency room, and clinic settings have been reported to reach 21%, 24%, and 36% respectively, and account for approximately 1% of hospital admissions for this age group.³¹ The number of older people with problem drinking is expected to rise as the population ages over the coming decades. Despite the prevalence of alcohol problems among the elderly, rates of detection and treatment are low.

Use the CAGE questions to uncover problem drinking. Although symptoms and signs are subtler in older adults, making early detection more difficult, the four CAGE questions (see p. 50) remain sensitive and specific in this age group using the conventional cut-off score of 2 or more.^{30,31}

Advance Directives and Palliative Care. Many older patients are interested in expressing their wishes about end-of-life decisions and would like providers to initiate these discussions before any serious illness develops.³² Advance care planning involves several tasks—providing information, invoking the patient's preferences, identifying proxy decision makers, and conveying empathy and support. Use clear and simple language. You can often begin the discussion by relating these decisions to a current illness or experiences with relatives or friends. Ask about preferences relating to written "Do Not Resuscitate" orders specifying life support measures "if the heart or lungs were to stop or give out." Second, encourage the patient to establish in writing a health care proxy or durable power of attorney for health care, "someone who can make decisions reflecting your wishes in case of confusion or emergency." These conversations, although difficult at first, convey your respect and concern for patients and help them and their families prepare openly and in advance for a peaceful death.³³ Plan to include these discussions in an office setting rather than in the uncertain and stressful environment of emergency or acute care.

For patients with advanced or terminal illnesses, include these discussions in an overall plan for palliative care. The goal of palliative care is "to relieve suffering and improve the quality of life for patients with advanced illnesses and their families through specific knowledge and skills, including communication with patients and family members; management of pain and other symptoms; psychosocial, spiritual, and bereavement support; and coordination of an array of medical and social services."³⁴ To ease patient and family distress, refining your communication skills is especially important: making good eye contact; asking open-ended questions; responding to anxiety, depression, or changes in the patient's affect; and showing empathy.

HEALTH PROMOTION AND COUNSELING

Important Topics for Health Promotion and Counseling in the Older Adult

- When to screen
- Vision and hearing
- Exercise
- Immunizations
- Household safety
- Cancer screening
- Depression
- Dementia
- Elder mistreatment

As the life span for older adults extends into the 80s, new issues for screening emerge. Given the heterogeneity of the aging population, guiding principles for deciding who might benefit from screening and when screening might be stopped are helpful, especially because evidence for making screening decisions is not always available. In general, base screening decisions on each older person's particular circumstances, rather than on his or her age alone. Three factors should be considered: life expectancy, time interval until benefit from screening accrues, and patient preference.³⁵ The American Geriatrics Society recommends that if life expectancy is short, give priority to treating conditions that will benefit the patient in the time that remains. Consider deferring screening if it places added burdens on the older adult with multiple medical problems, a shortened life expectancy, or dementia. Tests that help with prognosis and planning, however, are still warranted even if the patient would not pursue treatment.³⁶

Screening for age-related changes in *vision* and *hearing* is important in helping older adults maintain optimal function, and is included in the 10-Minute Geriatric Screener (see p. 858).³⁷ Test *vision* objectively using an eye chart. Asking the patient about any *hearing* loss may be adequate, followed by the whisper test and more formal testing if indicated (see p. 190).

Recommend regular aerobic *exercise* to improve strength and aerobic capacity, increase physiologic reserve, improve energy levels for ADLs, and slow the onset of disability. Resistance training and Tai Chi may be especially helpful for improving balance, combating the negative effects of inactivity on cardiovascular disease and arthritis, and enhancing recovery from chronic diseases. Exercise programs can begin with brisk walking. Physical therapists can provide more tailored recommendations.

Immunizations should include the pneumococcal vaccine once after age 65 and annual influenza vaccinations after age 65. Unvaccinated older adults should have the primary series of three tetanus immunizations. Vaccinated older adults should receive the single booster dose of tetanus immunization every 10 years.

Survey older patients about *household safety*. Poor lighting, chairs at awkward heights, slippery or irregular surfaces, and environmental hazards can be readily corrected. Use of restraints should be avoided whenever possible.

Cancer screening for selected conditions can be controversial because of limited evidence supporting its use for adults older than age 70 to 80. The American Geriatrics Society recommends annual or biennial mammography for breast cancer screening up to age 75, then every 2 to 3 years if life expectancy remains more than 4 years. Although the prevalence of cervical cancer has declined in the United States, 40% to 50% of deaths from cervical cancer are in women older than 65 years. Provide Pap smears every 1 to 3 years until age 65 to 70 when there is no history of cervical pathology. Colonoscopy is recommended for colon cancer screening every 10 years beginning at age 50. This examination is difficult for many older patients, who may decline despite encouragement. Review the discussion about colonoscopy, fecal occult blood tests, and the pitfalls of the prostate-specific antigen test and the digital rectal examination on pages 462–463. Screening for lung cancer and ovarian cancer is not recommended. Check for skin cancer and oral cancers in high-risk patients.³⁸

Depression commonly affects older adults but is both underdiagnosed and undertreated. A positive response to asking “Do you often feel sad or depressed?” is approximately 80% sensitive and specific and should prompt further investigation, possibly with the Geriatric Depression Scale. Depressed men older than 65 years are at increased risk for suicide; they require particularly careful evaluation.

Dementia, a “global impairment of cognitive function that interferes with normal activities,” affects 16% of Americans older than 65 years.³⁹ Prominent features include short- and long-term memory deficits and impaired judgment. Thought processes are impoverished; speech may be hesitant as a result of difficulty in finding words. Loss or orientation to place may make navigating by foot or car problematic or even dangerous. Most dementias represent Alzheimer’s disease (50% to 85%) or vascular multi-infarct dementia (10% to 20%). Watch for Alzheimer’s disease in patients with a positive family history because their risk is three times higher than the risk in the general population.

Dementia often has a slow insidious onset and may escape detection by both families and clinicians, especially in the early stages of *mild cognitive impairment*. Look for problems with memory, then later for changes in cognitive function or ADLs. Watch for family complaints of new or unusual behaviors. Testing with the Mini-Mental State Examination may be helpful, although level of education and cultural variables such as language may affect scores. If you identify cognitive changes, investigate contributing factors such as medications, depression, metabolic abnormalities, or other medical and psychiatric conditions. In patients with dementia, counsel families about the potential for disruptive behavior, accidents, falls, and termination of driving privileges. Foster discussion of legal arrangements such as power of attorney and advance directives while the patient can still contribute to decision making. Useful tools for assessing memory loss and depression from the Practicing

Physician Education Project can be found at www.americangeriatrics.org/education/ppep_index.shtml.

Finally, consider screening all older patients for possible *elder mistreatment*, which includes abuse, neglect, exploitation, and abandonment. Depression, dementia, and malnutrition are all considered independent risk factors. Prevalence of elder mistreatment is approximately 1% to 5% of the older population; however, that statistic is based solely on self-reported cases of elder mistreatment, and many more cases may remain undetected. Although several screening instruments are available, no single instrument has emerged for rapid yet accurate assessment and diagnosis of this important problem.^{40,41}

TECHNIQUES OF EXAMINATION

As you have gathered, assessment of the older adult does not follow the traditional format of the history and physical examination. It calls for enhanced techniques of interviewing, special emphasis on daily function and key topics related to elder health, and a focus on functional assessment during the physical examination. Because of its importance to the health of older adults and the order of your assessment, this section begins with Assessing Functional Status: The “Sixth Vital Sign.” This segment includes how to evaluate risk for falls, one of the greatest threats to health and well-being in elders. Next follows features of the traditional “head-to-toe” examination tailored to the older adult.

ASSESSING FUNCTIONAL STATUS: THE “SIXTH VITAL SIGN”

During assessment of older adults, the clinician places a special premium on maintaining the patient’s health and well-being. In a sense, all visits are opportunities for health promotion and counseling directed to sustaining the patient’s independence and optimal level of function. Although the specific goals of care may vary, a primary focus is preserving the patient’s functional status, the “sixth vital sign.” Functional status specifically means the ability to perform tasks and fulfill social roles associated with daily living across a wide range of complexity.⁴² As noted in the General Survey section on p. 861, your assessment of functional status begins when the patient enters the room. Several well-validated and time-efficient assessment tools can help maintain focus on these observations and assist with this approach.

Assessing Functional Ability. Deficits in function are now recognized as better predictors of mortality and patient outcomes after hospitalization than admitting diagnoses.⁴³ Several performance-based assessment instruments are available. The screening tool on page 858 is brief, has high interrater agreement, and can be used easily by office staff. It also covers the three im-

portant domains of geriatric assessment: physical, cognitive, and psychosocial function. Note that it addresses vision and hearing, key sensory modalities, and includes questions about urinary incontinence, an often unreported problem that greatly affects social interactions and self-esteem in the elderly. One mnemonic that helps students assess causes of incontinence is DIAPERS: **D**elirium, **I**nfection, **A**trophic urethritis/vaginitis, **P**harmaceuticals, **E**xcess urine output (i.e., congestive heart failure, hyperglycemia), **R**estricted mobility, **S**tool impaction.⁴⁴

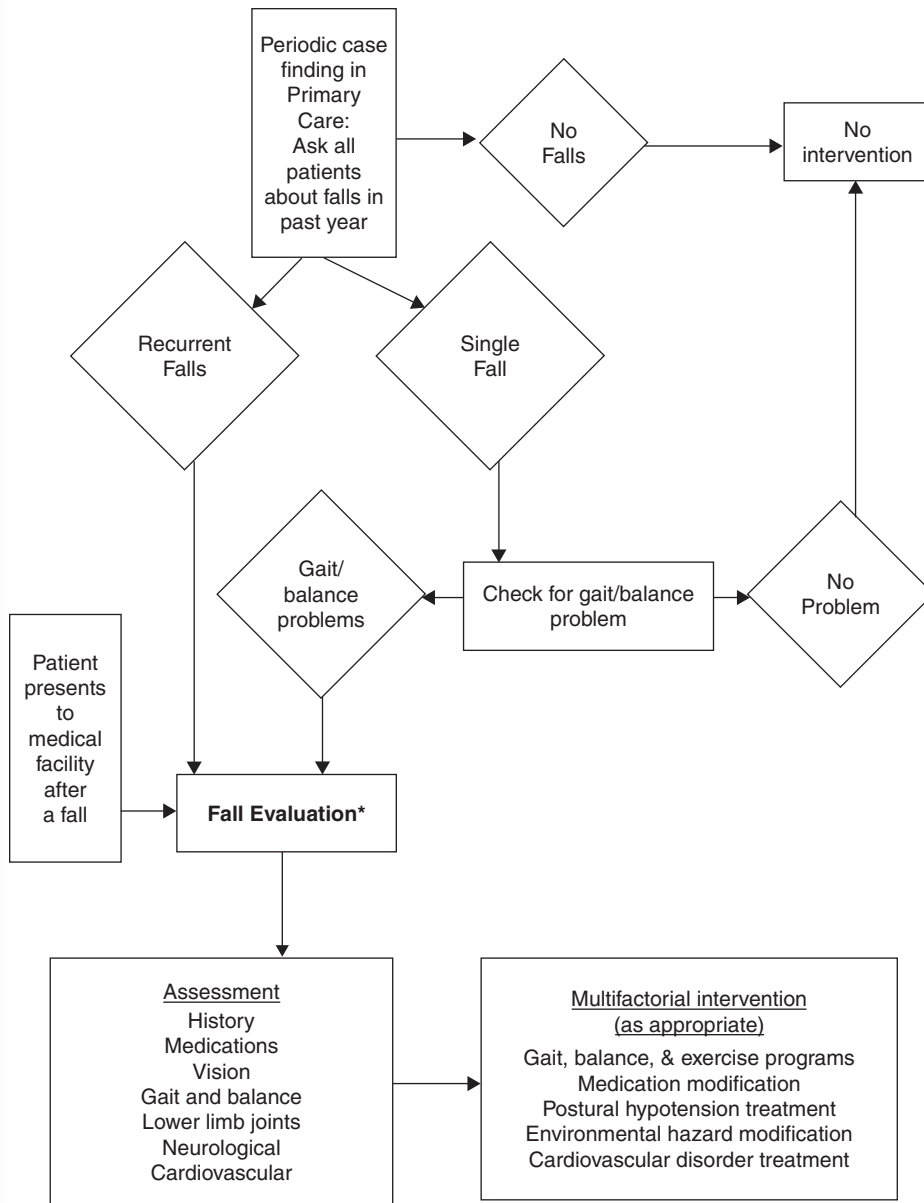
■ 10-Minute Geriatric Screener		
Problem	Screening Measure	Positive Screen
Vision	2 Parts: Ask: “Do you have difficulty driving, or watching television, or reading, or doing any of your daily activities because of your eyesight?” If yes, then: Test each eye with Snellen chart while patient wears corrective lenses (if applicable).	Yes to question and inability to read greater than 20/40 on Snellen chart
Hearing	Use audioscope set at 40 dB. Test hearing using 1,000 and 2,000 Hz.	Inability to hear 1,000 or 2,000 Hz in both ears or either of these frequencies in one ear
Leg mobility	Time the patient after asking: “Rise from the chair. Walk 20 feet briskly, turn, walk back to the chair and sit down.”	Unable to complete task in 15 seconds
Urinary incontinence	2 Parts: Ask: “In the last year, have you ever lost your urine and gotten wet?” If yes, then ask: “Have you lost urine on at least 6 separate dates?”	Yes to both questions
Nutrition/weight loss	2 Parts: Ask: “Have you lost 10 lbs over the past 6 months without trying to do so?” Weigh the patient.	Yes to the question or weight <100 lbs
Memory	Three-item recall	Unable to remember all three items after 1 minute.
Depression	Ask: “Do you often feel sad or depressed?”	Yes to the question.
Physical disability	Six questions: “Are you able to . . . : “Do strenuous activities like fast walking or bicycling?” “Do heavy work around the house like washing windows, walls, or floors?” “Go shopping for groceries or clothes?” “Get to places out of walking distance?” “Bathe, either a sponge bath, tub bath, or shower?” “Dress, like putting on a shirt, buttoning and zipping, or putting on shoes?”	Yes to any of the questions.

(Source: Moore AA, Siu AL. Screening for common problems in ambulatory elderly: clinical confirmation of a screening instrument. *Am J Med* 100:438–440, 1996.)

Further Assessment of Falls. There is a veritable avalanche of evidence linking falls to morbidity and mortality in the older population. Each year approximately 35% to 40% of healthy community-dwelling older adults experience falls. Incidence rates in nursing homes and hospitals are almost three times higher, with related injuries in approximately 25%. Loss of confidence from fear of falling and postfall anxiety syndrome further impair functional status even after recovery.^{44,45}

The American Geriatrics Society recommends risk factor assessment for falls during routine primary care visits, with more intensive assessment in high-risk groups—those with first or recurrent falls, nursing home residents, and those prone to fall-related injuries. The Society has published an algorithm for assessing and managing falls. Fall-related assessments should include details about the how the fall occurred, especially from witnesses, and identification of risk factors, medical comorbidities, functional status, and environmental risks—coupled with interventions for prevention.⁴⁵ Effective single interventions include gait and balance training and exercise to strengthen muscles, reduction of home hazards, discontinuation of psychotropic medication, and multifactorial assessment with targeted interventions. Additional useful strategies include addressing change in postural blood pressure, attention to concurrent acute illness, reduction in medications to fewer than four, detection of sensory neuropathy and impairment of proprioception, investigation of any episodes of syncope, patient and family education, treatment of osteoporosis, and possible use of hip protectors.⁴⁶ Specific recommendations from the American Geriatrics Society about assessment and multifactorial interventions can be found in the diagram on Prevention of Falls in Older Adults on p. 860.

Review the easy-to-use tools for practicing clinicians on falls and urinary incontinence from the Practicing Physician Education Project at the Web site given on p. 872.



PREVENTION OF FALLS IN OLDER ADULTS

American Geriatric Society, British Geriatrics Society, American Academy of Orthopaedic Surgeons. Guideline for the prevention of falls in older persons. *J Am Geriatr Soc.* 49(5):664–672, 2001.



PHYSICAL EXAMINATION OF THE OLDER ADULT

General Survey. Deepen the observations about the patient that you have been compiling since the visit began. What is the patient's apparent state of health and degree of vitality? What about mood and affect? Note the patient's hygiene and how the patient is dressed. How does the patient walk into the room? Move onto the examining table? Are there changes in posture or involuntary movements?

Vital Signs. Measure blood pressure using recommended techniques, checking for increased systolic blood pressure (SBP) and widened pulse pressure (PP), defined as systolic blood pressure minus diastolic blood pressure. With aging, systolic blood pressure and peripheral vascular resistance increase, whereas diastolic blood pressure decreases.

Assess the patient for orthostatic hypotension, defined as a drop in systolic blood pressure of ≥ 20 mm Hg or diastolic blood pressure of ≥ 10 mm Hg within 3 minutes of standing.^{51,52} Measure blood pressure and heart rate in two positions: supine after the patient rests for up to 10 minutes, then within 3 minutes.

Review the JNC 7 categories of prehypertension to help you with early detection and treatment of hypertension (p. 109).

Measure heart rate, respiratory rate, and temperature. The apical heart rate may yield more information about arrhythmias in older patients. Use thermometers accurate for lower temperatures

Weight and height are especially important in the elderly and needed for calculation of the body mass index. Weight should be measured at every visit.

Flat or impoverished affect may be seen in *depression, Parkinson's disease, or Alzheimer's disease.*

Undernutrition, slowed motor performance, loss of muscle mass, or weakness suggests frailty.

Kyphosis or abnormal gait can impair balance and increase risk for falling.

Isolated systolic hypertension (SBP ≥ 140) after age 50 triples the risk for coronary heart disease in men. PP ≥ 60 is a risk factor for cardiovascular and renal disease and stroke.^{47–50}

Orthostatic hypotension occurs in 10% to 20% of older adults and in up to 30% of frail nursing home residents, especially when they first arise in the morning. It can present with lightheadedness, weakness, unsteadiness, visual blurring, and, in 20% to 30% of patients, syncope.

Causes include medications, autonomic disorders, diabetes, prolonged bed rest, blood loss, and cardiovascular disorders.^{47,53–55}

Respiratory rate ≥ 25 breaths per minute indicates lower respiratory infection.

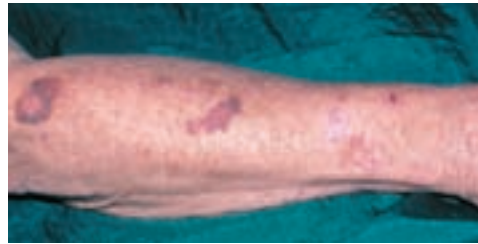
Hypothermia is more common in elderly patients.¹¹

Low weight is a key indicator of poor nutrition.

Undernutrition is seen with depression, alcoholism, cognitive impairment, malignancy, chronic organ failure (cardiac, renal, pulmonary), medication use, social isolation, and poverty.

Skin. Note physiologic changes of aging, such as thinning, loss of elastic tissue and turgor, and wrinkling. Skin may be dry, flaky, rough, and often itchy (*asteatosis*), with a latticework of shallow fissures that creates a mosaic of small polygons, especially on the legs.

Observe any patchy changes in color. Check the extensor surface of the hands and forearms for white depigmented patches (*pseudoscars*) and for well-demarcated vividly purple macules or patches that may fade after several weeks (*actinic purpura*).



ACTINIC PURPURA

Look for changes from sun exposure. Areas of skin may appear weather beaten, thickened, yellowed, and deeply furrowed; there may be *actinic lentigines*, or “liver spots,” and *actinic keratoses*, superficial flattened papules covered by a dry scale (p. 142).

Inspect for the benign lesions of aging, namely *comedones*, or blackheads, on the cheeks or around the eyes; *cherry angiomas* (p. 141), which often appear early in adulthood; and *seborrheic keratoses*, raised yellowish lesions that feel greasy and velvety or warty (p. 142).

Watch for any painful vesicular lesions in a dermatomal distribution.

In older bed-bound patients, especially when emaciated or neurologically impaired, inspect the skin thoroughly for damage or ulceration.

HEENT. Conduct a careful and thorough evaluation of the Head and Neck, as detailed in Chapter 6.

Inspect the eyelids, the bony orbit, and the eye. The eye may appear recessed from atrophy of fat in the surrounding tissues. Observe any *senile ptosis* arising from weakening of the levator palpebrae, relaxation of the skin, and increased weight of the upper eyelid. Check the lower lids for *ectropion* or *entropion* (p. 213). Note yellowing of the sclera, and *arcus senilis*, a benign whitish ring around the limbus (p. 216).

Test visual acuity, using a pocket Snellen chart or wall-mounted chart. Note any *presbyopia*, the loss of near vision arising from decreased elasticity of the lens related to aging.

Distinguish such lesions from a *basal cell carcinoma*, initially a translucent nodule that spreads and leaves a depressed center with a firm elevated border, and from a *squamous cell carcinoma*, a firm reddish-appearing lesion often emerging in a sun-exposed area (p. 142). A dark raised asymmetric lesion with irregular borders may be a *melanoma*.

Suspect *herpes zoster* from reactivation of latent varicella-zoster virus in the dorsal root ganglia. Risk increases with age and impaired cell-mediated immunity.⁵⁶

Pressure sores may develop from obliteration of arteriolar and capillary blood flow to the skin or from shear forces during movement across sheets or when lifted upright incorrectly. See Table 5-11, Pressure Ulcers.

More than 40 million Americans have refractive errors.

The pupils should respond to light and near effort. Except for possible impairment in upward gaze, extraocular movements should remain intact.

Using your ophthalmoscope, carefully examine the lenses and fundi.

Inspect each lens carefully for any opacities. Do not depend on the flashlight alone because the lens may look clear superficially.

In older adults, the fundi lose their youthful shine and light reflections, and the arteries look narrowed, paler, straighter, and less brilliant. Assess the cup-to-disc ratio, usually $\leq 1:2$.

Inspect the fundi for colloid bodies causing alterations in pigmentation called *drusen*.

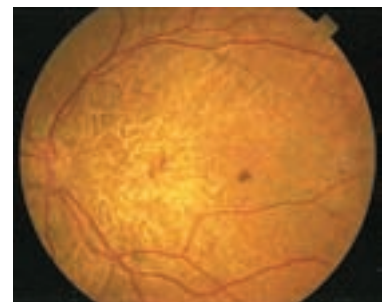
Test hearing by occluding one ear and using the techniques for whispered voice (see p. 190) or an audioscope.⁵⁸ Be sure to inspect the ear canals for cerumen.

Cataracts, glaucoma, and macular degeneration all increase with aging.⁵⁷

Cataracts are the world's leading cause of blindness. Risk factors include cigarette smoking, exposure to UV-B light, high alcohol intake, diabetes, medications (including steroids), and trauma. See Table 6-8, p. 216.

An increased cup-to-disc ratio suggests open angle *glaucoma*, caused by irreversible optic neuropathy and leading to loss of peripheral and central vision and blindness. Prevalence is three to four times higher in African Americans than in the general population.

Macular degeneration causes poor central vision and blindness. Types include *dry atrophic* (more common but less severe) and *wet exudative*, or neovascular. Drusen may be hard and sharply defined, or soft and confluent with altered pigmentation, shown below and on p. 188.



Removing cerumen often quickly improves hearing.

Examine the oral cavity for odor, appearance of the gingival mucosa, any caries, mobility of the teeth, and quantity of saliva. Inspect closely for lesions on any of the mucosal surfaces. Ask the patient to remove dentures so you can check the gums for denture sores.

Malodor may occur with poor oral hygiene or periodontitis, caries. *Gingivitis* may arise from periodontal disease. Dental plaque and cavitation may cause caries. Increased tooth mobility from abscesses or advanced caries warrants removal to prevent aspiration. Decreased salivation may develop from medications, radiation, Sjögren's syndrome, or dehydration. Lesions may arise from *oral tumors*, usually on the lateral borders of the tongue and floor of the mouth.⁵⁹

Continue your usual examination of the thyroid gland and lymph nodes.

Thorax and Lungs. Complete the usual examination, making note of subtle signs of changes in pulmonary function.

Increased anteroposterior diameter, purse-lipped breathing, and dyspnea with talking or minimal exertion suggest *chronic obstructive pulmonary disease*.

Cardiovascular System. Review your findings from measurement of the blood pressure and heart rate.

Isolated systolic hypertension and a widened pulse pressure are cardiac risk factors, prompting a search for *left ventricular hypertrophy (LVH)*.

As with younger adults, begin by inspecting the JVP, palpating the carotid upstrokes, and listening for any overlying carotid bruits.

A tortuous atherosclerotic aorta can raise pressure in the left jugular veins by impairing their drainage into the right atrium. It may also cause kinking of the carotid artery low in the neck on the right, chiefly in women with hypertension, which can be mistaken for a carotid aneurysm.

Carotid bruits in the elderly warrant further investigation for possible carotid stenosis due to risk for ipsilateral stroke.

Assess the point of maximal impulse (PMI), then auscultate S_1 and S_2 . Listen also for the extra sounds of S_3 and S_4 .

Sustained PMI in LVH; diffuse PMI in congestive heart failure (see p. 311).

In older adults an S_3 suggests dilatation of the left ventricle from congestive heart failure or cardiomyopathy; an S_4 often accompanies hypertension.

Beginning in the second right interspace, listen for cardiac murmurs in all areas of auscultation (see p. 309). Describe the timing, shape, location of maximal intensity, radiation, intensity, pitch, and quality of each murmur you detect.

A systolic crescendo–decrescendo murmur in the second right interspace suggests aortic sclerosis or aortic stenosis, seen in approximately 30% and 2% of community-dwelling elders, respectively. Both carry increased risk for cardiovascular disease and death.⁶⁰

For systolic murmurs over the clavicle, check for delay between the brachial and radial pulses.

Delay during simultaneous palpation (but not compression) of the brachial and radial pulses denotes aortic stenosis.⁶¹

A harsh holosystolic murmur at the apex suggests mitral regurgitation, also common in the elderly.

Breasts and Axillae. Palpate the breasts carefully for lumps or masses. Include palpation of the tail of Spence that extends into the axilla. Examine the axillae for lymphadenopathy.

Lumps or masses in older women, and rarely in older men, mandate further investigation for possible malignancy.

Abdomen. Continue your usual examination of the abdomen. Check for any bruits over the aorta, renal arteries, and femoral arteries. Inspect the upper abdomen; palpate to the left of the midline for any aortic pulsations. Try to assess the width of the aorta by pressing more deeply with one hand on each of its lateral margins (see pp. 384–385).

Bruits may be noted in atherosclerotic vascular disease.

Widened aorta and pulsatile mass may be found in *abdominal aortic aneurysm*.

Female Genitalia and Pelvic Examination.^{62–64} Take special care to explain the steps of the examination and allow time for careful positioning. Ask an assistant to help the older woman move onto the examining table, then into the lithotomy position. Raising the head of the table may make her more comfortable. For the woman with arthritis or spinal deformities who cannot flex her hips or knees, an assistant can gently raise and support the legs, or help the woman into the left lateral position.

Inspect the vulva for changes related to menopause such as thinning of the skin, loss of pubic hair, and decreased distensibility of the introitus. Identify any labial masses. Note that bluish swellings may be varicosities. Bulging of the anterior vaginal wall below the urethra may indicate an urethrocele or urethral diverticulum.

Look for any vulvar erythema.

Inspect the urethra for *caruncles*, or prolapse of fleshy erythematous mucosal tissue at the urethral meatus. Note any enlargement of the clitoris.

Spread the labia, press downward on the introitus to relax the levator muscles, and gently insert the speculum after moistening it with warm water or a water-soluble lubricant. If you find severe vaginal atrophy, a gaping introitus, or an introital stricture from estrogen loss, you will need to vary the size of the speculum.

Inspect the vaginal walls, which may be atrophic, and the cervix. Note any thin cervical mucus or vaginal or cervical discharge.

Use a wooden spatula or endocervical brush to obtain endocervical cells for the Pap smear. A blind swab may be indicated if the atrophic vagina is too small.

After removing the speculum, ask the patient to bear down to detect uterine prolapse, cystocele, urethrocele, or rectocele.

Perform the bimanual examination. Check for motion of the cervix and for any uterine or adnexal masses.

Benign masses include condylo-mata, fibromas, leiomyomas, and sebaceous cysts. See Table 12-2, *Bulges and Swellings of the Vulva, Vagina, and Urethra*, p. 451.

Erythema with satellite lesions results from infection with *Candida*; erythema with ulceration or necrotic center is associated with *carcinoma*. Multifocal reddened lesions with white scaling plaques are consistent with *Paget's disease*.

Clitoral enlargement may accompany *androgen-producing tumors* or use of androgen creams.

Estrogen-stimulated cervical mucus with ferning is seen with use of hormone replacement therapy, *endometrial hyperplasia*, and *estrogen-producing tumors*.

Discharge may accompany vaginitis or cervicitis. See Table 12-6, *Vaginal Discharge*, p. 454.

See Table 12-7, *Positions of the Uterus*, p. 455, and Table 12-8, *Abnormalities of the Uterus*, p. 456.

Mobility of the cervix is restricted with inflammation, malignancy, or surgical adhesion. Enlarging uterine fibroids, or leiomyomas, are found in *malignant leiomyosarcoma*. The ovaries are palpable with *ovarian cancer*.

Perform the rectovaginal examination. Assess for uterine and adnexal irregularities through the anterior rectal wall, and for rectal masses. Change gloves first if blood from the bimanual examination is on the vaginal examining glove to obtain an accurate stool sample.

Male Genitalia and Prostate. Examine the penis, retracting the foreskin if present. Examine the scrotum, testes, and epididymis.

Proceed with the rectal examination, paying special attention to any rectal masses and any nodularity or masses of the prostate. Note that the anterior and median lobes of the prostate are inaccessible to rectal palpation, limiting the utility of the digital rectal examination for detecting prostate enlargement or possible malignancy.

Peripheral Vascular System. Auscultate the abdomen for aortic, renal, or femoral artery bruits.

Assess the width of the abdominal aorta in the epigastric area and examine for a pulsatile mass.

Palpate pulses carefully.

Musculoskeletal System. Begin your evaluation with the screening evaluation on p. 858. If you find joint deformity, deficits in mobility, or pain with movement, conduct a more thorough examination. Review the techniques for examining individual joints in Chapter 15, The Musculoskeletal System.

Nervous System. As with the musculoskeletal examination, begin your evaluation of the nervous system with the 10-Minute Geriatric Screener on p. 858.

Pursue further examination if you note any deficits. Focus especially on memory and affect.

A uterus that is enlarged, fixed, or irregular may indicate adhesions or possible malignancy. Rectal masses are found in *colon cancer*.

Findings include smegma, penile cancer, and scrotal hydroceles.

Rectal masses are found in *colon cancer*. *Prostate hyperplasia* may be linked with enlargement; *prostate cancer* is possible with nodules or masses.

Bruits over these vessels are found in *atherosclerotic disease*.

Consider *abdominal aortic aneurysm* if aortic width is ≥ 3 cm or with a pulsatile mass, especially in older male smokers with coronary disease.

Diminished or absent pulses may indicate *arterial occlusion*. Consider confirmation with an office ankle-brachial index. Note that $\leq 33\%$ of patients with peripheral vascular disease have symptoms of claudication.⁶⁵

Degenerative joint changes in *osteoarthritis*; joint inflammation in *rheumatoid* or *gouty arthritis*.

See Tables 15-1 to 15-10.

Learn to distinguish delirium from depression and dementia (see Table 20-1). Nonetheless, careful search for underlying causes is warranted.

Also pay close attention to gait and balance, particularly standing balance; timed 8-foot walk; stride characteristics like width, pace, and length of stride; and careful turning.

Note that standard neuromuscular tests have not been shown to predict impairments in mobility.⁶⁹ Further, although neurologic abnormalities are common in the older population, their prevalence without identifiable disease increases with age, ranging from 30% to 50%.⁷⁰ Examples of age-related abnormalities include unequal pupil size, decreased arm swing and spontaneous movements, increased leg rigidity and abnormal gait, presence of the snout and grasp reflexes, and decreased toe vibratory sense.

Search for evidence of tremor, rigidity, bradykinesia, micrographia, shuffling gait, and difficulty turning in bed, opening jars, and rising from a chair.

Abnormalities of gait and balance, especially widening of base, slowing and lengthening of stride, and difficulty turning, are correlated with risk for falls.⁶⁶⁻⁶⁸

These findings are seen in *Parkinson disease*, found in 1% of adults 65 years or older and 2% of those 85 years or older.⁷¹ Tremor is of slow frequency and occurs at rest, with a “pill-rolling” quality. It is aggravated by stress and inhibited during sleep or movement. *Essential tremor* is bilateral and symmetric, with positive family history, and is diminished by alcohol.

Persistent blinking after glabellar tap and difficulty walking heel-to-toe in *Parkinson disease* are also more common.

RECORDING YOUR FINDINGS

Note that initially you may use sentences to describe your findings; later you will use phrases. The style below contains phrases appropriate for most write-ups. As you read through this physical examination, you will notice some atypical findings. Try to test yourself. See if you can interpret these findings in the context of all you have learned about the examination of the older adult.

Recording the Physical Examination—The Older Adult

Mr. J is an older adult who appears healthy but underweight, with good muscle bulk. He is alert and interactive, with good recall of his life history. He is accompanied by his son.

Vital Signs: Ht (without shoes) 160 cm (5'). Wt (dressed) 65 kg (143 lbs). BMI 28. BP 145/88 right arm, supine; 154/94 left arm supine. Heart rate (HR) 98 and regular. Respiratory rate (RR) 18. Temperature (oral) 98.6°F.

10-Minute Geriatric Screener (see p. 858)

Vision: Patient reports difficulty reading. Visual acuity 20/60 on Snellen chart.

Hearing: Cannot hear whispered voice in either ear. Cannot hear 1,000 or 2,000 Hz with audioscope in either ear.

Leg Mobility: Can walk 20 feet briskly, turn, walk back to chair, and sit down in 14 seconds.

Urinary Incontinence: Has lost urine and gotten wet on 20 separate days.

Nutrition: Has lost 15 lbs over the past 6 months without trying.

Memory: Can remember three items after 1 minute.

Depression: Does not often feel sad or depressed.

Physical Disability: Can walk fast but cannot ride a bicycle. Can do moderate but not heavy work around the house. Can go shopping for groceries or clothes. Can get to places out of walking distance. Can bathe each day without difficulty. Can dress, including buttoning and zipping, and can put on shoes. (continued)

Needs further evaluation for glasses and possibly hearing aid.

Needs further evaluation for incontinence, including "DIAPER" assessment (see p. 858), prostate examination, and postvoid residual, which is normally ≤ 50 ml (requires bladder catheterization).

Needs nutritional screen, p. 853.

Consider exercise regimen with strength training.

Physical Examination

Skin. Warm and moist. Nails without clubbing or cyanosis. Hair thinning at crown.

Head, Eyes, Ears, Nose, Throat (HEENT). Scalp without lesions. Skull NC/AT. Conjunctiva pink, sclera muddy. Pupils 2 mm constricting to 1 mm, round, regular, equally reactive to light and accommodation. Extraocular movements intact. Disc margins sharp, without hemorrhages or exudates. Mild arteriolar narrowing. TMs with good cone of light. Weber midline. AC \geq BC. Nasal mucosa pink. No sinus tenderness. Oral mucosa pink. Dentition fair. Caries present. Tongue midline, slight beefy redness. Pharynx without exudates.

Neck. Supple. Trachea midline. Thyroid lobes slightly enlarged, no nodules.

Lymph Nodes. No cervical, axillary, epitrochlear, or inguinal lymph nodes.

Thorax and Lungs. Thorax symmetric. Kyphosis noted. Lungs resonant with good excursion. Breath sounds vesicular. Diaphragms descend 4 cm bilaterally.

Cardiovascular. JVP 6 cm above the left atrium. Carotid upstrokes brisk, without bruits. PMI tapping, in the 5th ICS, 9 cm lateral to the midsternal line. II/VI harsh holosystolic murmur at the apex, radiating to the axilla. No S₃, S₄, or other murmurs.

Abdomen. Scaphoid, with active bowel sounds. Soft, nontender. No masses or hepatosplenomegaly. Liver span 7 cm in right midclavicular line; edge smooth and palpable at the RCM. No CVAT.

Genitourinary. Circumcised male. No penile lesions. Testes descended bilaterally, smooth.

Rectal. Rectal vault without masses. Stool brown, negative for occult blood.

Extremities. Warm and without edema. Calves supple.

Peripheral Vascular. Pulses 2+ and symmetric.

Musculoskeletal. Mild degenerative changes at the knees, with quadriceps wasting. Good range of motion in all joints.

Neurological. Oriented to person, place, and time. Mini-Mental State: score 29. Cranial Nerves II–XII intact. Motor: Decreased quadriceps bulk. Tone intact. Strength 4/5 throughout. RAMs, finger-to-nose intact. Gait with widened base. Sensation intact to pinprick, light touch, position, and vibration. Romberg negative. Reflexes 2+ and symmetric, with plantar response downgoing.

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Delirium and dementia are common and very important disorders that affect multiple aspects of mental status. Both have many possible causes. Some clinical features of these two conditions and their effects on mental status are compared below. A delirium may be superimposed on dementia.

	Delirium	Dementia
Clinical Features		
<i>Onset</i>	Acute	Insidious
<i>Course</i>	Fluctuating, with lucid intervals; worse at night	Slowly progressive
<i>Duration</i>	Hours to weeks	Months to years
<i>Sleep/Wake Cycle</i>	Always disrupted	Sleep fragmented
<i>General Medical Illness or Drug Toxicity</i>	Either or both present	Often absent, especially in Alzheimer's disease
Mental Status		
<i>Level of Consciousness</i>	Disturbed. Person less clearly aware of the environment and less able to focus, sustain, or shift attention	Usually normal until late in the course of the illness
<i>Behavior</i>	Activity often abnormally decreased (somnia) or increased (agitation, hypervigilance)	Normal to slow; may become inappropriate
<i>Speech</i>	May be hesitant, slow or rapid, incoherent	Difficulty in finding words, aphasia
<i>Mood</i>	Fluctuating, labile, from fearful or irritable to normal or depressed	Often flat, depressed
<i>Thought Processes</i>	Disorganized, may be incoherent	Impoverished. Speech gives little information.
<i>Thought Content</i>	Delusions common, often transient	Delusions may occur.
<i>Perceptions</i>	Illusions, hallucinations, most often visual	Hallucinations may occur.
<i>Judgment</i>	Impaired, often to a varying degree	Increasingly impaired over the course of the illness
<i>Orientation</i>	Usually disoriented, especially for time. A known place may seem unfamiliar.	Fairly well maintained, but becomes impaired in the later stages of illness
<i>Attention</i>	Fluctuates. Person easily distracted, unable to concentrate on selected tasks	Usually unaffected until late in the illness
<i>Memory</i>	Immediate and recent memory impaired	Recent memory and new learning especially impaired
Examples of Cause	Delirium tremens (due to withdrawal from alcohol) Uremia Acute hepatic failure Acute cerebral vasculitis Atropine poisoning	<i>Reversible:</i> Vitamin B ₁₂ deficiency, thyroid disorders <i>Irreversible:</i> Alzheimer's disease, vascular dementia (from multiple infarcts), dementia due to head trauma

