countries is between 50 and 52 years, where women spend one-third of their lives in the postmenopausal period. Menopause occurs at earlier ages in Hispanic and African-American women as well as in women of lower socioeconomic status. Estrogen levels fall abruptly at menopause, inducing a variety of physiologic and metabolic responses. Rates of cardiovascular disease (CVD) increase and bone density decreases rapidly after menopause.

In the United States, women live on average 5.0 years longer than men, with a life expectancy at birth in 2018 of 81.2 years in women compared with 76.2 years in men of all races. Life expectancy was lower in African Americans of both sexes and higher in Hispanics of both sexes than their Caucasian counterparts. Accordingly, elderly women outnumber elderly men, so that age-related conditions, such as hypertension, have a female preponderance.

SEX DIFFERENCES IN HEALTH AND DISEASE

■ ALZHEIMER'S DISEASE

(See also Chap. 431.) Alzheimer's disease (AD) affects approximately twice as many women as men. Because the risk for AD increases with age, part of this sex difference is accounted for by the fact that women live longer than men. However, even in relatively younger groups (60–70 years of age), there is still a higher incidence of AD among women. Additional factors may contribute to the increased risk for AD in women, including sex differences in brain size, structure, and functional organization. Multimodal neuroimaging has demonstrated that certain biomarkers of the preclinical phase of AD, including a decline in neuronal mitochondrial function and impaired cerebral glucose metabolism, are evident earlier in women and are even distinguishable during the perimenopausal endocrine transition. There is emerging evidence for sex-specific differences in gene expression, not only for genes on the X and Y chromosomes but also for some autosomal genes. These genetic differences may translate into variable severity of AD, with women experiencing greater deficits in cognition. The ε4 allele of the apolipoprotein E gene (*APOε4*), a cholesterol carrier integral for lipid transport in the