

# Disability in Older Adults



## Yesterday

- Thirty years ago, America was steadily aging. In 1980, approximately 26.1 million people were 65 years of age or older, compared with 3 million in 1900. And Americans were living notably longer than they had in the past – average life expectancy for a child born in 1980 was 73.7 years, up from 47.3 years in 1900. Disability was on the rise among older people. Studies from the 1970s and early 1980s pointed to modest increases in the prevalence of disability. For example, in 1976, 4.8 million older people reported limitations in the number or kinds of major activities they could undertake.
- It was widely believed that aging invariably brought with it frailty and loss of independence. One study, for example, predicted that technology would save people's lives, but still leave them disabled and an increasing burden on society. However, groundbreaking research from projects such as the Baltimore Longitudinal Study of Aging (<http://www.grc.nia.nih.gov/branches/blsa/blsaneu.htm>), initiated in 1958, began to suggest that disease and disability were not inevitable consequences of aging.
- The growth in the aging population, the increase in life expectancy, and concerns about disability led to the founding in 1974 of the National Institute on Aging (NIA) within the National Institutes of Health (NIH). The Institute was charged with “the conduct and support of biomedical, social, and behavioral research, training, health information dissemination, and other programs with respect to the aging process and diseases and other special problems and needs of the aged.”

## Today

- People continue to live longer and the U.S. population is increasingly older. The leading edge of the Baby Boom turns 65 in 2011, part of a rapid growth in population aging in the United States – and worldwide. 39 million people in the United States are age 65 or older, and life expectancy at birth has reached 78.3 years. Most notable is the growth in the population of individuals age 85 and older who are at highest risk for disease and disability.

- Research demonstrates that disease and disability are not an inevitable part of aging. Disability rates can be reduced, as evidenced by data from the National Long Term Care Survey (<http://www.nltcs.aas.duke.edu/>), which found that between 1982 and 1999, the prevalence of physical disability in older Americans decreased from 26 percent to 20 percent. Additionally, there is evidence from the Health and Retirement Study (<http://hrsonline.isr.umich.edu/>) that the probability of being cognitively impaired at a given age has been decreasing (from the mid-1990s up until at least 2004), although the rapidly increasing population of older adults means that the absolute number of cognitive impaired individuals is still increasing.
- However, it remains unclear whether the decline in rates of disability has continued since 1999, and researchers are analyzing multiple data sources to ascertain the trend. There is some evidence suggesting that while the decline in disability may have continued among the oldest old (those age 85+), the decline in disability ended or was reversed in the new cohorts recently entering old age.
- Factors thought to have contributed to this decline in disability rates include improved medical treatment (particularly treatments such as beta blockers and ACE inhibitors for cardiovascular disease), positive behavioral changes, more widespread use of assistive technologies, rising education levels, and improvements in socioeconomic status. The NIH supports research to understand the underlying causes of this decline in order to develop behavioral and multi-level interventions to maintain and accelerate this trend.
- Scientists are identifying factors that contribute to healthier aging and longer life expectancy. Epidemiologic studies suggest that lifespan and health are determined by both genetic and environmental influences, with genetics accounting for about 35 percent of lifespan and modifiable environmental factors contributing most to this complex interaction.
- Interventions are being developed to improve how older people function. Researchers at the NIH-supported Claude D. Pepper Older Americans Independence Centers (<https://www.peppercenter.org/public/home.cfm>), for example, have developed effective ways to prevent falls,

improve muscle function (size, strength and power), and reduce delirium related to hospital stays. One NIH study dramatically demonstrated that even 90-year-olds can improve muscle strength and mobility with simple weight training exercises.

- However, downward trends in disability may be threatened by recent increases in obesity levels. According to the National Health Interview Survey (<http://www.cdc.gov/nchs/nhis.htm>), the disability rate among people ages 18 to 59 rose significantly from the 1980s through the 1990s, with the growing prevalence of obesity factoring into the trend. Obesity and overweight put people at increased risk for potentially disabling chronic diseases such as heart disease, type 2 diabetes, high blood pressure, stroke, osteoarthritis, respiratory problems, and some forms of cancer.

## Tomorrow

- Researchers may find ways to identify those most at risk for specific types of disability. NIH investigators have identified several markers, including grip strength, gait (walking) speed, circulating levels of the protein IL-6, and measures of lung function, that can be used to predict the onset of limitations in mobility. Researchers are currently conducting a genome-wide association study to identify genes and genomic regions associated with trajectories of change in each of these markers.
- The National Health and Aging Trends Study (<http://web.jhu.edu/popaging/nhats.html>), a new nationwide NIH-funded study of 12,000 people age 65 and older, will provide data to disentangle the physical, social, technological and environmental factors in disability prevalence, onset, and recovery. The study will also help us understand the social and economic consequences of late-life disability for individuals, families and society.
- The Health and Retirement Study (<http://hrsonline.isr.umich.edu/>), a nationwide NIH-funded survey of more than 22,000 people age 50 and older, is allowing researchers to examine the interactions among physical and mental health, insurance coverage, financial well-being, family support, work status, retirement planning and the impact of these variables on disability. Improved ability to forecast disability trends will help give policymakers more accurate projections of national expenditures for the Social Security and Medicare programs. Researchers will also assess disability risks in

understudied populations within the United States, minorities, and the medically underserved.

- Research may bring new treatments to prevent or minimize disability from stroke, diabetes, and other acute and chronic health problems. For example, NIH-supported researchers are developing interventions to improve quadriceps muscle function after total knee replacement and muscle conditioning (muscle size, strength and power) in community dwelling individuals at high risk for falls and mobility disability. Other studies are evaluating the ability of an exercise and health promotion intervention to facilitate maintenance of physical and cognitive function in older adults with mild cognitive impairment (often a precursor condition to Alzheimer's disease). In addition, researchers are conducting a clinical trial of testosterone in men with impaired physical functioning.
- Interventions are being developed to prevent disability in older people. For example, the ongoing Lifestyle Interventions and Independence for Elders (LIFE) Study (<https://www.thelifestudy.org/public/index.cfm>) will assess the effect of an exercise intervention to prevent mobility disability in older adults. NIA also funds a randomized trial of a social engagement intervention, the Experience Corps (<http://www.experiencecorps.org/index.cfm>), which places older volunteers, mostly inner-city residents, in elementary schools in cognitively demanding and socially productive roles. Preliminary data have shown improvements in both mental and physical health for seniors, as well as benefits for the schools.

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