

Key NIA-Funded Studies and Surveys for Research on Longevity

Over the past several decades, NIA has funded many research and data collection projects to help illuminate the factors associated with human longevity. Studying individuals with exceptional longevity poses several challenges for researchers. Most research focused on human longevity is based on studies of long-lived individuals and their families. But since centenarians make up a very small share of the population, it can be difficult to find and recruit them for studies, particularly if they are in poor health. And depending on how they are recruited, findings from studies of centenarians may not be generalizable to all centenarians or to the population as a whole.

The biological children or siblings of those with exceptional longevity are often studied as substitutes for centenarians, since they are expected to share many of the same protective traits. Some researchers have also compared the characteristics of centenarians with those of younger individuals with otherwise similar characteristics. These techniques are common in cross-sectional studies, which compare the health status of different groups at a single point in time.

Longitudinal studies are more useful for identifying causal factors linked to exceptional longevity, but generally require following a large number of individuals over several decades to identify the characteristics that contribute to healthy aging and longer lifespan for certain individuals.

Several key NIA-funded studies and surveys are highlighted below.

Costa Rican Longevity and Healthy Aging Study

The Costa Rican Longevity and Healthy Aging Study (CRELES or *Costa Rica Estudio de Longevidad y Envejecimiento Saludable*) is a set of nationally representative longitudinal surveys of health and life course experiences of older Costa Ricans. The sample was drawn from Costa Rican residents in the 2000 population census who were born in 1945 or before, with an over-sample of the oldest old (ages 95 and older). CRELES is of particular interest to longevity researchers because Costa Rica's life expectancy is higher than that of the United States, despite being a middle-income country with about one-fifth the per capita income and one-tenth the per capita health spending.

For more information, see University of California at Berkeley's website:
www.creles.berkeley.edu/

Chinese Longitudinal Healthy Longevity Survey

The Chinese Longitudinal Healthy Longevity Survey (CLHLS) includes the largest sample of centenarians in the world. Of the 80,000 interviews conducted between 1998 and 2009, 14,290 were conducted with people ages 100 or older. The CLHLS is a longitudinal survey designed to uncover the key factors related to health and survival in old age, including demographic, family, socioeconomic, and behavioral characteristics. Data were collected for centenarians and their biological children, as well as a comparison group of nonrelatives.

For more information, see Duke's Center for Population Health and Aging website:
<http://centerforaging.duke.edu/chinese-longitudinal-healthy-longevity-survey>

Health and Retirement Study

Launched in 1992, the Health and Retirement Study (HRS) is a federally funded, longitudinal study of more than 20,000 U.S. adults over age 50, conducted every two years. The HRS includes a wide range of social, economic, and physiological indicators that can be used to measure aging processes—including income, work, assets, pension plans, health insurance, disability, physical health and function cognitive function, and health care expenditures. The HRS genotyped almost 20,000 respondents who provided DNA samples and signed consent forms between 2006 and 2012. Genetic data derived from these samples are available. From 2006 to 2012, the HRS collected blood in the form of dried blood spots to assay a limited set of clinical biomarkers. In 2016, the HRS began collecting samples of venous blood to enhance the existing set of biomarkers by providing information on the aging of the immune system and related molecular and cellular age-related changes—potentially illuminating some of the mechanisms underlying social disparities in health and aging.

For more information, see the University of Michigan's Institute for Social Research website: <http://hrsonline.isr.umich.edu/>

National Health and Aging Trends Study

The National Health and Aging Trends Study (NHATS) follows a nationally representative sample of over 8,000 Medicare beneficiaries ages 65 and older. The NHATS includes information on older adults' physiological and cognitive abilities; daily activities; and aspects of the social, physical, and technological environment. NHATS over-samples people ages 90 and older to account for the growing number of people with exceptional longevity.

For more information, see the National Health and Aging Trends Study website: www.nhats.org/

Longevity Gene Study

In the Longevity Gene Study (LonGenity), Ashkenazi Jews ages 95 to 107 were recruited to participate in a study of the factors associated with exceptional longevity and positive health outcomes among long-lived individuals. The database includes information on more than 500 Ashkenazi Jews and 700 of their biological children, and is focused on uncovering genetic variants and other biomarkers linked to exceptional longevity, cardiovascular health, and cognitive ability among older adults.

For more information, see Albert Einstein College of Medicine's website: www.einstein.yu.edu/centers/aging/research/longevity-longevity-genes-projects/longevity.aspx

Long Life Family Study

Started in 2005, the Long Life Family Study (LLFS) is a cross-sectional study of longevity and healthy aging focused on over 500 long-lived individuals and their families around Boston, New York, Pittsburgh, and in Denmark. Study participants completed an extensive questionnaire about their health, environment, and family history, and also received biomedical testing. The primary goal of the study is to uncover the factors associated with exceptional longevity, better physical functioning, and a slower process of aging among certain families.

For more information, see Duke's Center for Population Health and Aging website:

<https://cpha.duke.edu/research-project-group/long-life-family-study-llfs>

New England Centenarian Study

The New England Centenarian Study (NECS) started in 1995 as a longitudinal study of centenarians living in the Boston area. Since then, the NECS has expanded to include centenarians from across the United States and internationally, and is the largest ongoing study of adults ages 100 and older in the world. The study currently includes more than 3,000 centenarians and their siblings, and 500 biological children of centenarians. Among the centenarians are 150 who reached ages older than 110. The NECS includes data on demographic characteristics, health, family history, physical and cognitive ability, as well as DNA samples for most study participants.

For more information, see Boston University's School of Medicine website:
www.bumc.bu.edu/centenarian/

Panel Study of Income Dynamics

Launched in 1968, the Panel Study of Income Dynamics (PSID) is the world's longest running household panel survey. Information on study participants and their descendants have been collected continuously, including data on employment, income, wealth, expenditures, health, marriage, childbearing, education, and other topics. The PSID is useful for longevity research because it can be used to explore the effects of earlier life experiences on health and mortality later in life.

For more information, see the University of Michigan Institute for Social Research website:
<https://psidonline.isr.umich.edu/>