

Understanding the Relationship between Cognitive Ability and Age

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MarketWatch Blog by Alicia H. Munnell



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Thank god “crystallized intelligence” matters!

I don't know that much about cognitive aging, so I am delighted that my colleagues at the Center for Retirement Research are in the process of publishing three briefs in this area. Cognitive aging is central to the issue of retirement security because it could affect how long people work and their ability to manage their money in retirement. And I am also interested in my own functioning: on the one hand, I increasingly forget people's names; on the other hand, I can write a paper much more quickly than I could in the past. The **first brief** is an overview; the next two focus on how cognitive aging affects the ability to work and to manage finances in retirement.

Here is what I learned from the overview. First, cognitive ability consists of two dimensions: 1) having knowledge and 2) acquiring knowledge. Psychologists commonly refer to knowledge as “crystallized intelligence” and the ability to process new information as “fluid intelligence.” Most real-world activities rely on both crystallized and fluid intelligence.

Second, research into what happens to cognitive ability as people age has exploded. Tools to measure different aspects of cognitive ability at a given point include: 1) performance on everyday tasks, such as driving; 2), results of standardized tests, such as IQ tests; and 3) direct scans of the brain. To measure changes over time, researchers use: 1) cross-sectional studies, which compare the performance of, say, a 30-year old to a 60-year old in a test conducted at the same point in time; and 2) longitudinal studies, which compare the performance of the same individual at, say, ages 30 and 60. Each approach has flaws, but researchers have found ways to compensate.

Third, on average, starting in an individual's 30s or 40s, reaction speed starts to slow, working memory starts to deteriorate, and other components of fluid intelligence begin to weaken, with noticeable declines in fluid intelligence widespread by the time people are in their 50s and 60s. But crystallized intelligence tends to increase or remain steady into one's 70s and 80s among people without cognitive impairment.

Fourth, in terms of ability to work, most people can remain productive in their 50s and 60s despite cognitive aging. This finding is supported by numerous studies that show insignificant age-related losses in productivity across a variety of occupations. However, declines in processing capacity and speed can affect the performance of some workers engaged in complex tasks under time pressure, such as air-traffic controllers.

Fifth, in terms of ability to manage money in retirement, older individuals typically have already acquired the cognitive skills to carry out common tasks, like paying bills on time. However, two groups are at risk: retirees who take over financial matters from a spouse (due to death or illness) and those who develop a severe cognitive impairment, such as dementia, a risk that rises exponentially in one's 70s and 80s.

Pretty interesting!