

Do older people take fewer risks?

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Studies by the University of Basel have shown that whether and how risk-taking propensity varies over a person's life span depends in part on how risk taking is measured. When subjects are asked how they assess their risk propensity, a clear reduction with age is the result. However, this reduction is not necessarily observed for specific risk-taking tasks. Depending on the type of task set, the propensity measured in older people can be unchanged, lower or higher. These heterogeneous results could be caused by an age-related functional change in the brain.

Cognitive and decision scientists from the University of Basel carried out research into whether we engage in more or less risk-taking behavior as we get older and into the biological foundations that influence our [decision making](#). The researchers examined, inter alia, the influence of the measurement instruments used on the observed age-related changes in risk-taking behavior. Two studies were carried out: in the first, the researchers collected data on self-assessment and behavior in risk-taking tasks from more than 1,000 subjects aged between 18 and 90. The second study used magnetic resonance imaging to compare the brain function of younger and older adults as they solved risk-taking tasks.

Self-report and behavior do not always converge

The results of the first study, published in the journal *Psychology and Aging*, show that based on self-reports, risk-taking propensity decreases over the subject's [life span](#), but can be observed both to decrease and stay the same, or even increase slightly, in a variety of risk-taking tasks. The study found that different measurement instruments sometimes

result in different risk profiles.

As a potential cause for these heterogeneous results, the researchers cite the different cognitive requirements of the tasks. Demanding tasks presented a greater challenge to [older people](#) than younger people. One example of a more complex task used in both studies was the "Balloon Analogue Risk Task", which involved inflating virtual balloons, with points awarded for each pump stroke. The larger the balloon, the more points are awarded and the higher the subject's winnings at the end of the task. If the balloon is inflated too far, it bursts and all the points earned are lost. The balloons burst at various points, which are, of course, unknown to the subjects. Successful completion of the balloon task requires the extraction and integration of various pieces of information.

Older people may find it harder to cope with these demands, causing them to resort, for example, to less profitable, risk-averse behavior in the balloon task. Depending on the task structure and requirements, the risk propensity observed in older subjects may remain the same, decrease or even increase.

Neurological foundations of decision making

In order to better understand the biological foundations of these processes, in a second study the researchers compared the neural functional profiles observed in the Balloon Analogue Risk Task for groups of 26 younger and 27 older subjects. In collaboration with Chinese scientists, they identified age-related functional changes in a certain region of the brain as a potential contributing factor to the observed heterogeneity in risk tasks. As the researchers report in the journal *Frontiers in Aging Neuroscience*, age does not seem to substantially influence the processing of risk, reward or loss per se, but rather to affect the way they are integrated into a decision signal.

In summary, to ask whether older people take fewer risks than younger people or not is perhaps misguided. Instead, what transpires from these two studies is that risk-taking propensity and changes therein depend on the complexity of the task. The processing and integration of large quantities of information is of vital importance, in particular in terms of financial and health-related decisions. The authors therefore recommend age-appropriate structuring and communication of information in order to ensure that the preferences of older people do not result merely as an effect of the measurement.

More information: Jing Yu et al, Altered Value Coding in the Ventromedial Prefrontal Cortex in Healthy Older Adults, *Frontiers in Aging Neuroscience* (2016). [DOI: 10.3389/fnagi.2016.00210](https://doi.org/10.3389/fnagi.2016.00210)

Loreen Mamerow et al. Risk Taking Across the Life Span: A Comparison of Self-Report and Behavioral Measures of Risk Taking., *Psychology and Aging* (2016). [DOI: 10.1037/pag0000124](https://doi.org/10.1037/pag0000124)

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