

# Age-related macular degeneration occurs much earlier than previously assumed

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It is widely accepted that age-related macular degeneration (AMD) is the most common cause of visual impairment and blindness in industrialized countries. However, it is questionable whether it can continue to be defined as a disease in people in their 50s and beyond. Investigations to determine the incidence of age-related macular degeneration undertaken as part of the Gutenberg Health Study of the University Medical Center of Johannes Gutenberg University Mainz (JGU) have shown that even persons under the age of 50 years may be affected by an early form of the eye disease. Just under 4 percent of the 35 to 44-year-old subjects in the population-based study were found to be suffering from AMD.

In order to identify the age- and gender-specific incidence of AMD, the research team of the Department of Ophthalmology at the Mainz University Medical Center led by Dr. Christina Korb, PD Dr. Alireza Mirshahi, and Professor Norbert Pfeiffer assessed the status of the ocular fundus of 4,340 participants in the Gutenberg Health Study. Evaluated were vascular structure, the head of the optic nerve, and the macula of the eye, which is the point of sharpest vision. The results in general documented that the incidence of AMD increases with age. However, the researchers also discovered to their surprise that even persons under the age of 50 years can already be affected by early stage AMD. In the age group of 35- to 44-year-olds, 3.8 percent of the subjects in the Gutenberg Health Study were found to be suffering from the disease. The findings of the Mainz researchers thus contradict the current assumption that [age-related macular degeneration](#) only occurs in the section of the population that is over 50 years old.

With the help of their findings, the researchers were also able to gain insights into how frequently the various forms of age-related [macular degeneration](#) occur. On average, about 12 percent of the examined 35- to 74-year-olds had early stage AMD, but only 0.2 percent of the study participants exhibited symptoms of late stage AMD, which is often associated with severe [visual impairment](#). "Our research shows that age-related macular degeneration can already occur much earlier than previously thought. This means there may also be possible consequences with regard to the screening examinations for these diseases," concluded Dr. Christina Korb.

Age-related macular degeneration leads to loss of visual acuity. The cause is damage to the cells in the region of the central retina also known as the "yellow spot." There is still insufficient information on the annual number of individuals who develop AMD and the Mainz-based researchers hope to be able to remedy this with the help of their next project. As the Gutenberg cohort was subjected to a follow-up examination five years after inclusion in the study, the research group has now access to more relevant and reliable data. "The prospective design of the study, in combination with the availability of interdisciplinary research data, should make it possible for us to identify risk factors for the development of late forms of AMD in our cohort. We are looking forward with some excitement to the results," explained the team. The objective is to reveal, for the first time, the incidence of AMD across the whole population of Germany.

The Gutenberg Health Study (GHS) is an interdisciplinary, population-based, prospective, monocenter cohort study, which has been conducted at the Mainz University Medical Center since 2007. Cardiovascular diseases, cancer, eye diseases, metabolic disorders as well as immune system and mental disorders are being investigated as part of the study. The goal of the study is to improve the individual risk prediction for these diseases. To this end, lifestyle, psychosocial factors, environment,

clinical laboratory parameters, and the severity of any subclinical disorder are being taken into consideration. A comprehensive biorepository is being developed so that molecular biological investigations can be conducted. During the baseline visit, 15,010 participants aged 35 to 74 years were invited to participate in a 5-hour examination program at the study center. This was followed by a computer-assisted telephone interview (CATI) using a standardized questionnaire and the assessment of diseases and health problems after 2.5 years. All endpoints will be subjected to extensive validation. In April 2012, a detailed follow-up examination of participants similar to the baseline examination was conducted at the center five years after their inclusion in the study. The aim is to continue to monitor the cohort and conduct further tests.

**More information:** C. A. Korb et al. (2014), "Prevalence of age-related macular degeneration in a large European cohort: Results from the population-based Gutenberg Health Study," *Graefe's Archive for Clinical and Experimental Ophthalmology*, [DOI: 10.1007/s00417-014-2591-9](https://doi.org/10.1007/s00417-014-2591-9)

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