

# New study indicates ankle-brachial index associated with mild cognitive impairment

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In a large population-based study of randomly selected participants in Germany, researchers found that mild cognitive impairment (MCI) occurred significantly more often in individuals diagnosed with a lower ankle brachial index (ABI), which is a marker of generalized atherosclerosis and thus cumulative exposure to cardiovascular risk factors during lifetime. Interestingly, this strong association was only observed in patients with non-amnesic MCI, but not amnesic MCI. There also was no independent association of MCI and intima media thickness (IMT) or coronary artery calcification (CAC), two other surrogate markers of cardiovascular risk. Examination of differences by gender revealed a stronger association of a decreasing ABI with non-amnesic MCI in women. This study is published in the *Journal of Alzheimer's Disease*.

The concept of MCI describes an intermediate state between normal cognitive aging and [dementia](#). Although people with MCI have a higher dementia risk, very few actually develop dementia. In fact, many persons with MCI convert back to a cognitively normal state. This transitional - and therefore possibly modifiable - characteristic makes the concept of MCI a promising approach in the development of prevention strategies.

What criteria determine MCI? The following four criteria must be met for a diagnosis of MCI: First, participants have a subjective impression of a declined cognitive performance over the last two years. Second, this subjective impression is validated by objective measures (cognitive test battery). Third, participants are capable of handling activities of daily

living. Fourth, a diagnosis of dementia is ruled out.

The concept of MCI distinguishes between two subtypes depending on the affected cognitive domain: participants with impairment in the memory domain are categorized as amnesic MCI (aMCI) and those with deficits in non-memory domains are categorized as non-amnesic MCI (naMCI).

The Heinz Nixdorf Recall (Risk Factors, Evaluation of Coronary Calcium and Lifestyle) study is an observational, population-based, prospective study that examined 4,814 participants (50% men) between 2000 and 2003 in the metropolitan Ruhr Area. After five years a second examination was conducted with 90% of the participants taking part.

For this analysis, 490 participants diagnosed with MCI were compared with 1,242 cognitively normal participants. Of participants with MCI, 249 had amnesic MCI and 241 had non-amnesic MCI.

"In conclusion, we found an independent association of a lower ABI with a higher prevalence of MCI and particularly with naMCI, whereas no significant association could be found with aMCI in fully adjusted models," commented lead investigator Christian Weimer, MD, Department of Neurology, University Hospital of Essen, University of Duisburg-Essen, Germany. "This underlines the importance of preventing atherosclerosis by treating [cardiovascular risk factors](#) and life style modification to prevent cognitive decline."

**More information:** "Ankle-Brachial Index but Neither Intima Media Thickness Nor Coronary Artery Calcification Is Associated with Mild Cognitive Impairment" *Journal of Alzheimer's Disease*. [DOI: 10.3233/JAD-150218](https://doi.org/10.3233/JAD-150218)

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