Left and right-brain age differently, linked to Alzheimer's disease
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As we age, the cortex shrinks and gradually causes cognitive decline, which is a normal part of aging.

Until now, scientists have thought that the left and right sides of the cortex thin at the same rate, but this study shows that the side of the brain that was thicker at age 20 deteriorates faster.

Thinner cortex linked to Alzheimer's disease

The researchers found cortical asymmetry is lost as we age, proving that the two sides of the brain deteriorate at different rates. In the exact same brain regions as in normal aging, they found the left side of the brain shrinks faster in Alzheimer's disease.

"It's too early to conclude, but cortical asymmetry could possibly be used as a marker to detect early brain changes in Alzheimer's Disease, which are thought to occur before cognitive symptoms start to show," says lead author of the study James Roe.

Brain-thinning starts early

The asymmetry-loss emerged at a similar age in most people (around early 30's) and continued across the adult lifespan, with accelerated decline around age 60.

"Loss of cortical asymmetry is happening gradually over the lifespan. We saw this with remarkable consistency in all samples," says Roe.

"The implication is that at least some brain-changes associated with Alzheimer's disease may play out over extended periods of the lifespan, possibly on
the order of decades, and may show high overlap with those occurring gradually in normal aging," Roe says.

**Largest lifespan dataset in the world**

The researchers, based at the Centre for Lifespan Changes in Brain and Cognition (LCBC) at the University of Oslo, used a "longitudinal" approach, meaning they were able to analyze brain scans of people at several time points throughout their lives. The study is part of the EU-funded project Lifebrain, a collaboration between many of the largest longitudinal aging datasets in the world.

Lead author of the study, James Roe, says this is what gives the study such strength: "The data we have thanks to Lifebrain is a treasure-trove. We were able to measure the thickness of every region of the cortex in over 2600 healthy participants from five countries, up to six times in the same person over time. Many other brain datasets only have one brain scan per person, so they cannot see changes occurring in the same person throughout life. Having follow-up scans of the same people was absolutely key to our study"


Provided by University of Oslo


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