Occupational complexity linked to better cognitive performance after damage to the brain's white matter

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Researchers in the US have presented findings indicating that individuals who have a history of complex occupations, involving work with other people, are better able to maintain memory and thinking skills in the presence of specific brain changes associated with Alzheimer's disease.

The team worked with 284 people with an average age of 60 and no problems with their memory or thinking. The volunteers underwent thinking tests, work history assessments and MRI brain scans. These scans are able show up spots called white matter hyperintensities (WMHs) that appear as white flecks on a brain scan image and indicate damage to nerve cell fibres that pass across the brain. White matter hyperintensities indicate damage to blood vessels in the brain are associated with cognitive decline and Alzheimer's disease.

The researchers found that despite having more WMHs in their brains, people who reported a higher occupational complexity were able to perform at the same level as those with a lower occupational complexity and fewer WMHs. Working mostly with other people, rather than data or things, was also linked to performing at the same level of others despite having more WMHs. The researchers conclude that occupational complexity plays a role in helping to protect the brain against the impact of vascular damage and Alzheimer's disease.

Dr David Reynolds, Chief Scientific Officer of Alzheimer's Research

UK, said:

"This study suggests that a complex job could influence a person's resilience to brain changes linked to Alzheimer's disease. Interestingly, it isn't simply complexity of work that drives this maintenance of function, but having a job that involves interacting with other people also seems to have been an important factor. We know that social engagement can be important in improving outcomes for people with dementia and may also play a role in reducing the risk of the condition. Mental stimulation and social interaction can both be found outside the workplace and these can be important parts of an active lifestyle that can help to maintain brain health."

"We know that the risk of diseases like Alzheimer's is likely the result of a complex interaction of age, genetics and lifestyle factors. More research is necessary to further understand this complex relationship and better understand how lifestyle factors such as occupation type can influence brain health later in life."

Provided by Alzheimer's Research UK

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