

Older age memory loss tied to stress hormone receptor in brain

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Scientists have shed new light on how older people may lose their memory with a development that could aid research into treatments for age-related memory disorders.

Many believe that stress is bad for our brains especially as we get older. Now researchers have shown how two receptors in older brains react to a stress hormone called cortisol, which has been linked to increasing forgetfulness as we age.

The study, by the University of Edinburgh, found that one receptor was activated by low levels of cortisol, which helped memory.

However, once levels of this stress hormone were too high they spilled over onto a second receptor activating [brain processes](#) that contribute to [memory impairment](#).

The study, published in the leading [Journal of Neuroscience](#), found that high levels of the stress hormone in aged mice made them less able to remember how to navigate a maze.

The memory recall problem was reversed when the receptor linked to poor memory was blocked.

The research helps explain why too much stress over a prolonged period interferes with the normal processes in storing everyday memories despite the fact that a little bit of stress can help us better remember

emotional memories.

Dr Joyce Yau, at the University's Centre for Cardiovascular Science, who led the study, said: "While we know that [stress hormones](#) affect memory, this research explains how the receptors they engage with can switch good memory to poorly-functioning memory in old age. We now know that lowering the levels of these stress hormones will prevent them from activating a receptor in the brain that is bad for memory. Understanding the mechanisms in the brain, which affect memory as we age, will help us to find ways to combat conditions linked to memory loss."

The study was funded by the Medical Research Council.

Professor Chris Kennard, Chairman of the MRC's Neuroscience and Mental Health Board said:

"This research highlights some interesting, original concepts relating to why [memory loss](#) occurs in old age. With people living ever longer, the MRC is really focussing on research which allows elderly people not just to survive, but also to stay healthy."

The researchers are currently investigating a new chemical compound which blocks an enzyme – 11beta-HSD1 – that is involved in producing stress hormones within cells, supported by a Seeding Drug Discovery Award from the Wellcome Trust. They hope this could be used to develop a drug treatment to slow the normal decline in memory associated with ageing or even improve memory in the already very old.

Provided by University of Edinburgh

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