

Study: Gut health plays a role in Alzheimer's development

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A series of experiments presented today at the Alzheimer's Research UK 2022 Conference at the Brighton Centre, has implicated the health of the gut in the development of Alzheimer's disease.

Alzheimer's is the leading cause of dementia, a condition that is devastating for those affected, their loved ones and their carers. With one in three people born today likely to develop dementia in their

lifetime, scientists are exploring potential links that could help uncover approaches for new treatments. This includes work to better understand the health of our gut and the brain.

The gut is host to a community of [bacteria](#) called the intestinal microbiome. The precise make-up of the microbiome differs between individuals, in both the types and quantities of bacteria present. This microbial composition can have far-reaching effects on other parts of our body and emerging evidence is suggesting a relationship with brain health and the risk of diseases like Alzheimer's.

New research, which hasn't yet been peer reviewed, presented at the Alzheimer's Research UK Conference 2022, highlights newly identified links between gut bacteria, inflammation and brain changes associated with Alzheimer's disease.

Dr. Edina Silajdžić, a postdoctoral fellow working in the research lab of Prof Sandrine Thuret from the Institute of Psychiatry, Psychology & Neuroscience (IoPPN) at King's College London analyzed blood samples from 68 people with Alzheimer's and a similar number of people without the disease. This study, in collaboration with the Biological Psychiatry Laboratory at IRCCS, Italy coordinated by Dr. Annamaria Cattaneo, revealed a distinct gut bacteria makeup in people with Alzheimer's as well as more inflammation markers in their stool and [blood samples](#).

Dr. Edina Silajdžić said, "Most people are surprised that their gut bacteria could have any bearing on the health of their brain, but the evidence is mounting, and we are building an understanding of how this comes about. Our gut bacteria can influence the level of inflammation in our bodies, and we know that inflammation is a key contributor to Alzheimer's disease.

"When we treated brain stem cells with blood from people with

Alzheimer's they were less able to grow new nerve cells than those treated with blood from people without memory problems. This leads us to believe that the inflammation associated with gut bacteria can affect the brain via the blood."

In research conducted by Dr. Stefanie Grabrucker, a postdoctoral researcher at APC Microbiome Ireland, University College Cork led by Prof Yvonne Nolan, stool samples were taken from people with and without Alzheimer's disease and transplanted into rats.

Prof Yvonne Nolan, who is leading this collaborative Centres of Excellence in Neurodegeneration (CoEN) project with partners in King's College London and IRCCS, Italy, said, "We found that rats with gut bacteria from people with Alzheimer's performed worse in memory tests, didn't grow as many new nerve cells in areas of the brain associated with memory and had higher levels of inflammation in the brain.

"Our findings suggest that symptoms of Alzheimer's may, in part, be caused by abnormalities in the gastrointestinal tract. While it is currently proving difficult to directly tackle Alzheimer's processes in the brain, the gut potentially represents an alternative target that may be easier to influence with drugs or diet changes."

Dr. Susan Kohlhaas, Director of Research at Alzheimer's Research UK, said, "Taking these results together reveals differences in the makeup of gut bacteria between people with and without dementia and suggest that the microbiome may be driving changes linked to Alzheimer's disease. Future research will need to build on these findings so that we can understand how gut health fits in to the wider picture of genetic and lifestyle factors that impact a person's dementia risk.

"Meetings like the Alzheimer's Research UK Conference provide researchers with an opportunity to hear the very latest from their

scientific colleagues, but we will need to wait until the researchers publish their full findings before we can assess the full impact of this research.

"The make-up of our gut microbiome is one of several potential dementia risk factors that we could influence by leading a healthy life. To maintain a healthy [brain](#) as we age the best current evidence suggests that we should keep physically fit, eat a balanced diet, maintain a healthy weight, not smoke, only drink within the recommended limits and keep blood pressure and cholesterol in check."

Provided by Alzheimer's Research UK

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