

Understanding Alzheimer's disease and Down syndrome

July 26 2017, by Mallory Powell

People who have Down syndrome may develop Alzheimer's disease at a younger age than people without Down syndrome. Recently, however, research showed that some people with Down syndrome might not develop dementia at all. Doctors and researchers are still trying to learn why some people with Down syndrome develop dementia, either earlier or later, while others don't.

Currently, only a few of the approved drug treatments for Alzheimer's [disease](#) have been tested to see if they work for [people](#) with Down [syndrome](#), and these treatments offer few benefits. It's critical, then, for us to learn more about normal aging and Alzheimer's disease in people with Down syndrome.

1. At the University of Kentucky, we have been funded since 2009 by the National Institutes of Health to follow a group of volunteers with Down syndrome. We've learned about several important changes that happen in the brain as people with Down syndrome age:
2. We've learned that connections in the brain called [white matter](#) tracts—like the "wires" connecting different parts in our brains—may be different in people with Down syndrome. The [frontal lobe](#), which is important to our personality, memory, and actions, appears to be less strongly connected to other parts of the brain in people with Down Syndrome. As these individuals get older, these connections become progressively weaker, possibly leading to personality changes and memory problems.

3. We're learning that there may be changes in some blood proteins that indicate the need for different Alzheimer's treatments for people with Down syndrome than people without the condition. Some of these changes include higher levels of a protein called betaamyloid, which increases with age and may suddenly change as someone develops dementia. Other proteins include those involved with the immune system and inflammation, which appear to be higher in people with Down syndrome as they get older.
4. We've learned about which kinds of learning and memory tests are helpful for diagnosing Alzheimer's disease and which are not. This understanding will help us determine which tests are most helpful in clinical trials that seek to determine if a treatment leads to improvements in learning and memory for people with Down syndrome.

Our work to understand Down syndrome and Alzheimer's disease continues. If you are at least 25 years old and have Down syndrome and are interested in participating in our research, please contact Roberta Davis, at 859.218.3865 or Roberta.Davis@uky.edu. Participation involves an annual visit including blood measures for wellness, neurologic examinations, tests of learning and [memory](#), changes in walking, and brain imaging. More information is also available at www.uky.edu/DSAging.

Provided by University of Kentucky

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