

AIDS and aging focus of research study

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When the general public thinks of HIV, they do not think of a neurological disease, yet people living with HIV infection know they need to worry about their brain health.

Untreated, HIV can cause severe dementia. Even with good control of the infection, a third or more of patients have problems with thinking or concentration, and many have mental [health](#) challenges. These issues are of particular concern in those over 50, a rapidly expanding group given the success of modern antiretroviral treatment.

These [brain health](#) problems can affect the ability to work, to engage fully in social and family roles, and to manage the medications required to treat the HIV infection. Yet the underlying causes, evolution over time, and best approaches to treatment remain unclear. Further, standard cognitive assessments are not widely available, making diagnosis more difficult. To address these gaps in knowledge, a multi-disciplinary team of researchers at The Montreal Neurological Institute and Hospital (The Neuro) and McGill University and the McGill University Health Centre Research Institute, together with scientists and physicians at other institutions in Montreal and across Canada, as well as members of the HIV community, created Action for Positive Brain Health Now. The goals of this project include developing better assessment tools, identifying factors that cause decline and defining the effects of this decline on function and quality of life.

The team recruited 856 older HIV-positive participants at five centres across Canada and measured their brain health. Participants will be

followed regularly for six or more years, with detailed assessments of their general health, mood, day-to-day function and quality of life. The project is also testing several possible treatments to improve brain health, ranging from exercise, to cognitive rehabilitation, to treatment of sleep problems.

If people living with HIV who follow these interventions think more clearly and function better, that will help health practitioners make specific recommendations to improve brain health in the future. This research in older people with HIV may also teach us more about the factors that lead to brain changes and memory loss with age in the general population.

Already, research from the Positive Brain Health Now team has established that a third to a half of study participants experience one or more brain health difficulties. Impaired cognition or depression, or both, have a clear impact on social and occupational engagement and quality of life. Although symptoms are common, they are stable over the short-term in most people, and can even improve in some.

While HIV infection itself can lead to brain dysfunction, other factors may be as, or more, important. Poor vascular health may take an indirect toll on the brain by reducing blood flow, and social exclusion and stigmatization also affect both thinking and mood. This broader understanding of the factors contributing to brain health in HIV provides many more targets for intervention.

Early results from the intervention studies suggest that treatments such as cognitive rehabilitation or exercise training can make a difference. Future work will test whether social engagement can help as well. The Positive Brain Health Now team is developing computer apps to assess brain health quickly in the clinic, and to help patients understand their brain health strengths and weaknesses, and pinpoint the treatments that

best target their unique risk factors.

"While we wait for the outcome of our study, we recommend that people living with HIV take particular care of their brain health: stop smoking, get regular exercise, and enough sleep," says Dr. Lesley Fellows, a neurologist at The Neuro and one of the project's three lead investigators. "Stay mentally active and engaged, whether at work, in a volunteer role, or through a hobby or social group. Minimize drugs or alcohol that might slow brain function. Eat a healthy diet with lots of vegetables, whole grains and fish. These are recommendations for everyone, but we think they are especially important steps to take if you live with HIV."

Co-lead Dr. Marie-Josée Brouillette, a psychiatrist at the McGill University Health Centre, emphasizes the importance of taking a holistic view of brain health. "Memory, concentration and mood are intertwined. Working on problems in one area of [brain](#) health may also address problems in other areas and improve overall function. Existing treatments and healthier behaviors can help, but people living with HIV need guidance to know where to start. This project should give them the tools they need."

Provided by McGill University

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