

How Can Brain Bank Donations Enhance Multiple Sclerosis Research?



TABLE OF CONTENTS

- | | |
|---|--|
| 2 NARCOMS Info Corner | 10 MS Messenger |
| 3 Letter from the Director | 11 MS News Updates: Viral infection and MS, Aging and MS Treatment, COVID-19 and MS, Cerebrovascular disease and MS |
| 4 Feature Focus: How Can Brain Bank Donations Enhance Multiple Sclerosis Research? | 15 Crossword |
| 8 Snapshot: Influenza vaccination preferences | |



INFOCORNER



What is NARCOMS?

NARCOMS is a registry for people who have multiple sclerosis (MS). Registry participants complete two surveys each year to provide information about themselves and their experience living with MS. Data from these surveys are used in research studies and to help further our understanding of MS. Participation in the registry is voluntary, and responders' identity and privacy are carefully secured.



What is the Goal of NARCOMS?

The NARCOMS Global MS Patient Registry helps to facilitate research about multiple sclerosis in North America and around the world. Collaboration between MS centers of excellence throughout the world helps to increase knowledge, improve clinical care, and enhance the quality of life for persons with MS.



How Private Is My Information?

We will keep the information that you provide us private and confidential by storing your data in a secure database. All information will be used for research purposes only. We do not share any personally identifying information with any person or research institution. We follow all Federal (HIPAA) laws regarding confidentiality.



Not Yet a NARCOMS Participant?

Please contact us at www.NARCOMS.org to enroll online, or call toll free at 1-800-253-7884.



Tell Us Your Thoughts!

Have an idea? We would love to hear from you!
Send us your questions, comments, and suggestions.

Call: 1-800-253-7884 (toll-free U.S.)

Email: MSRegistry@narcoms.org

Online: www.narcoms.org/contact-us

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DIRECTOR’S LETTER

Dear NARCOMS Now Readers:

In this issue of NARCOMS Now, we focus on the importance of brain donation in MS research. A wealth of information can be derived from understanding the impact of MS on brain structure and function. This information is important to develop new therapies and diagnostic tools for all types of MS.



Robert Fox, MD

In the Feature Focus, we discuss the opportunities in MS research provided by brain donation with Daniel Ontaneda, MD, PhD (Associate Professor of Neurology at Cleveland Clinic Lerner College of Medicine and a staff member at Cleveland Clinic Mellen Center for Multiple Sclerosis) and Bruce Trapp, PhD (Chair of the Department of Neurosciences at Cleveland Clinic Lerner College of Medicine). In addition, we describe the process of donation and provide a list of “brain banks” in the US, Canada, and Europe.

In the SnapShot, we examine influenza vaccination trends among NARCOMS participants and factors that clarify participants views on vaccination.

In the MS News sections, we examine the effects of Epstein-Barr and Cytomegalovirus infection on the risk of developing MS and discuss the use of disease modifying therapies on the aging MS population. In addition, we describe a health registry that collects data from health care providers across North America on how people with MS respond to infection with COVID-19. Finally, we present a study that examines the impact of vascular disease on MS symptoms and progression.

As always, we thank you for your continued participation in the NARCOMS registry! Your involvement in this registry is critical in advancing our knowledge of MS.

Sincerely,

Robert Fox, MD
Managing Director, NARCOMS



How Can Brain Bank Donations Enhance Multiple Sclerosis Research?

Deciding whether to become an organ or tissue donor is a very personal decision. However, for some people, it's a no-brainer. "Brain banks" or tissue banks are eager to accept brain tissue donations after death from people with or without neurologic diseases. Many existing brain banks focus on Alzheimer's disease or other dementia research. A few, including the brain bank at Cleveland Clinic's Mellen Center for Multiple Sclerosis Treatment and Research, are dedicated to using donated brain tissue to study multiple sclerosis (MS).

What Can We Learn From Studying Brain Tissue?

Some secrets of the brain may not be uncovered by examining living persons or through imaging tools like magnetic resonance imaging (MRI). "Examining brain and spinal cord tissue opens the door for discoveries that are not possible when we study a living human," explained Cleveland Clinic MS specialist Daniel Ontaneda, MD, PhD, Associate Professor of Neurology at Cleveland Clinic Lerner College of Medicine at Case Western Reserve University and a staff member at the Mellen Center for Multiple Sclerosis.

Several important discoveries about MS have come about by studying brain tissue

from deceased donors. The name "multiple sclerosis" is based on the plaques or scars on brain tissue found in postmortem studies. More recent studies showed that MS damages not only the myelin (coating of the nerve cell) but also the axons, which act like wiring to transmit nerve impulses in the brain. "This discovery was important, because it highlighted the fact that irreparable damage can occur very early in MS if brain lesions and MS relapses are not prevented," Dr. Ontaneda said. "Post-mortem research from our laboratory has also described a type of MS in which the myelin in the brain remains intact. This has led us to think of a possible new form of MS, called myelocortical MS, that may be quite different from more typical forms."

Other research from brain tissue has shown that neurorepair—the brain's own efforts to repair damaged parts—is ongoing even in older, longstanding lesions. Bruce Trapp, PhD, heads up the laboratory at Cleveland Clinic's Lerner Research Institute that collects and studies brain tissue for MS research. "Donated MS brain tissue has been essential for many of the seminal findings in MS research. Studies of these donated MS brains have helped us to identify the cells that are destroyed and molecules that may be possible targets

for therapies that slow or stop the disease process,” said Dr. Trapp.

How can I make a donation?

Brain tissue from a person with a neurologic condition is indeed a precious gift. What motivates people with MS to make the donation of brain tissue for collection after their death? “People with MS may deal with disabling symptoms over many decades,” explained Dr. Ontaneda. “For some, this creates a strong desire to help in the discovery of better treatments for MS and eventually for curing the disease.”

The Cleveland Clinic’s brain and spinal cord donation program is unique in the way that it responds after being notified that a donor has passed away. A team of researchers is on call 24/7 to make sure that the brain tissue can be examined as soon as possible after the organ becomes available. This team consists of transport staff, a processing team, imaging specialist, pathologist, neurologist, nurse, and a pathology assistant who work together to process the tissue. “The advantages of getting the donation soon after death are multiple,” Dr. Ontaneda explained. “At our brain bank, we perform an MRI of the brain within 6 hours

Brain Bank Resources

BrainNet Europe

<http://www.brainnet-europe.org/>

Cleveland Clinic Brain and Spinal Cord Donation Program

elderm3@ccf.org

<https://my.clevelandclinic.org/research/neurological/multiple-sclerosis/ms-tissue-acquisition-pathology>

Harvard Brain Tissue Resource Center

McLean Hospital

617-272-4622

hbtrc@mclean.harvard.edu

<http://www.brainbank.mclean.org/>

Human Brain and Spinal Fluid Resource Center

310-268-3536

<http://brainbank.ucla.edu/>

Maritime Brain Tissue Bank

Dalhousie University

902-494-1551

<http://braintissuebank.dal.ca/>

Multiple Sclerosis Society Tissue Bank

Division of Brain Sciences, Imperial College London

+44 (0) 20 7594 9734

<https://www.imperial.ac.uk/medicine/multiple-sclerosis-and-parkinsons-tissue-bank>

Multiple Sclerosis Tissue Repository

University of Illinois Medical Center at Chicago

312-996-5763

<http://www.msdiscovery.org/research-resources/tissue-repositories/1030-multiple-sclerosis-tissue-repository-university-illinois>

National Multiple Sclerosis Tissue Repository Network

mscenterneuro@cumc.columbia.edu

<https://www.msbraindonation.org/>

Newcastle Brain Tissue Resource

Newcastle University

nbtr@ncl.ac.uk

<https://nbtr.ncl.ac.uk>

Oregon Brain Bank

Oregon Health & Sciences University

503-494-0100

<https://www.ohsu.edu/school-of-medicine/pathology/oregon-brain-bank>

Rocky Mountain MS Center Tissue Bank

University of Colorado Denver

303-788-4030 ext. 120

<https://www.mscenter.org/research/tissue-bank/how-to-donate-brain-tissue>

of death. This is important because, beyond that time, the properties of the brain tissue start to change. When the tissue is preserved through a process called fixation or freezing, much of the natural tissue quality is lost. This is especially true of some types of genetic information that can be obtained from the tissue.” After about 12 hours without preservation, the tissue degrades such that most research studies cannot be performed.

The Cleveland Clinic Brain and Spinal Cord Donation Center accepts donations from any person with a diagnosis of MS located within 75 miles of the Cleveland Clinic. Most arrangements are made in advance as a person is planning their last wishes. Other brain banks

that study MS include Rocky Mountain MS Center in Denver, Colorado. About a dozen tissue banks in the U.S. accept brain tissue for research purposes, although many are focused on certain types of brain conditions such as Alzheimer’s disease. A list of some U.S. brain banks is shown on page 5. The COVID-19 pandemic has suspended many brain donation programs (including the Cleveland Clinic’s), so those interested should contact the specific program for more information.

“One of the best ways to study a disease is to examine the diseased tissue,” Dr. Ontaneda concluded. “Donating brain tissue is a very tangible way for a person with MS to support research efforts.”

What steps are involved in brain donation?

- Donors should pre-register and complete any online forms for the specific brain bank. This can be done by the donor or by another person on their behalf. The form asks for contact information and to specify the nature of a neurologic diagnosis, if present.
- The brain bank’s release and consent forms are sent to the prospective donor. The forms must be completed, signed, and returned to the brain bank for the person to be considered a registered future donor of that brain bank.
- The decision to donate one’s brain should be discussed with family and/or friends. The donor should designate one or more close contacts to make sure the donation is carried out. Mentioning brain donation in medical directives or will is not advised because these documents often are not consulted until it’s too late. Registering in advance is the best way to arrange to donate your brain.
- The brain bank will ask to be notified very soon after a person’s death, ideally within the hour. Most brain banks provide 24-hour phone numbers. The brain bank will arrange to transport the body to an appropriate facility for brain removal.
- The brain bank sends a recovery specialist to remove the brain.* The brain is removed from the back of the head so as not to be disfiguring. It is then transported to the brain bank. The transportation to the facility, brain recovery, and shipping to the brain bank is performed at no cost to the family. The body is then released to the family to proceed with funeral or cremation.

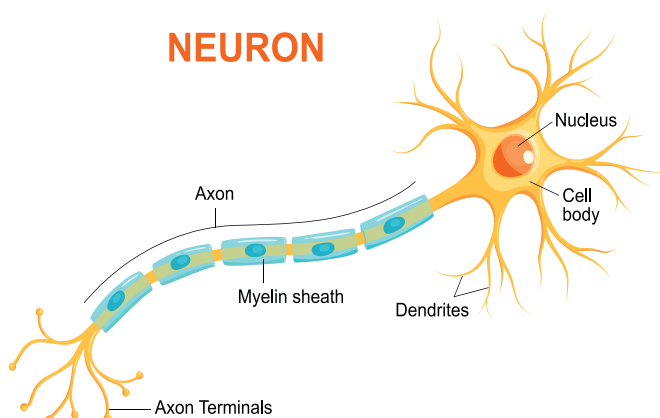
*In the case of the Cleveland Clinic brain donation program, an MRI is first conducted while the brain is still in the body, then another MRI is done after the brain has been removed.

Adapted from: How does the brain donation process work? Brain Donor Project. <https://braindonorproject.org/>

Progress in Myelin Imaging Research

Using brain tissue to study how myelin is depleted and regenerated

Myelin is the insulating layer around the nerves, including nerves in the brain and spinal cord. Myelin is made up of protein, fatty substances, and water. This myelin layer helps electrical impulses to travel quickly along the nerve cells. Myelination (the formation of myelin around the nerves) begins before birth and progresses rapidly during the first two years of life. During childhood and into early adulthood, myelin is laid down across most of the nervous system.



Myelin is needed for normal brain function. When myelin is damaged, brain functions are affected. *Remyelination* occurs when myelin is placed back on an axon which had its myelin injured or damaged, like during injury from MS inflammation.

To learn more about remyelination in people with MS, researchers are using a newer form of MRI called *myelin water imaging*. It is difficult to image myelin directly, so instead scientists image the water that is associated with myelin.

Scientists Alex MacKay and Cornelia Laule from Vancouver, British Columbia, led some of the myelin water research in MS. While some parts of nervous system tissue—including lipids, proteins, and nucleic acids—have complex dynamic structures, 70% to 85% of brain mass is simply water. Unlike conventional MRI, myelin water imaging can provide measurable information about the processes of demyelination and remyelination in MS. Low myelin water signals indicate demyelination, while increased signals suggest remyelination.

One way that myelin water research might be used is to detect the age of an MS brain lesion. One study showed that myelin water might help to delineate lesions less than a year old from those older than one year. Most newer lesions have only slightly reduced myelin water, whereas lesions at least one year old have a larger reduction in myelin water. This information may be useful in learning more about how demyelination and remyelination occur.

Advanced MRI methods like myelin water imaging have been studied and fine-tuned using autopsy brain tissue from donors with MS. Post-mortem brain tissue is especially useful for this type of research because is little change in the myelin water signal detectable on MRI.

Source: MacKay AL, Laule C. Magnetic resonance of myelin water: an in vivo marker for myelin. *Brain Plasticity*. 2016;2:71-91.



SNAPSHOT

WHAT WE CAN LEARN FROM NARCOMS SURVEYS

Influenza vaccination preferences among NARCOMS participants

Influenza is a common infection. People with multiple sclerosis (MS) are more likely to suffer complications if they get influenza, such as needing to be hospitalized. Vaccination can reduce the risk of getting influenza and the risk of complications. The American Academy of Neurology recommends that everyone with MS get the flu vaccine each year. The flu vaccine (shot) is considered to be safe for people with MS. However, not much is known about how often people with MS get influenza

vaccination. The spring 2020 survey included questions about vaccination history for several diseases including influenza. Results from the survey are described in the Table below¹.

The spring 2020 survey showed that about 4 in 10 NARCOMS participants discussed immunization with their neurologist. The percentage of NARCOMS participants who received the seasonal flu vaccine last year was lowest among those aged 18-24 years (59.1%)

Table. Reasons for not receiving seasonal influenza vaccine

Reason	% Respondants
Personal preference	30.0
Possible side effects or illness from the vaccine	29.3
Concern that the vaccine may worsen my MS	23.6
Doctor advised against a flu shot	12.1
Contextual factors (Too busy, COVID-19, sick at time of availability, flu shot never offered)	9.3
Allergy to eggs/vaccine	5.1
Don't know	4.0
Access or availability	2.1
Other	5.6

Modified from Marrie, et al. 2021¹

and rose as age increased. The percentage of participants who received the seasonal flu vaccine was highest among those aged 65 years and older at 79.9%. These percentages are higher than those reported by the Centers for Disease Control (CDC) for the general United States population³. However, the CDC also reported that immunization rates were higher in adults with high risk conditions. A higher level of education, greater annual household income, greater alcohol intake, being physically active, and using any DMT were associated with increased chance of being vaccinated. In contrast, being male, symptoms of depression or anxiety, and current smoking were associated with reduced chance of being vaccinated. Among those who did not get the influenza vaccination, the most common

reasons reported were personal preference (30%), concerns about possible side effects (29.3%), and concerns that the vaccine would worsen their MS (23.6%) (See Table).

While the influenza vaccination rate is higher than the general population, the vaccination rate is still lower than that recommended for persons with MS. Concerns about vaccine safety play a role in vaccination rates for influenza and indicate a need for education about the safety and importance of vaccination in people with MS.

References:

1. Marrie RA, Kosowan L, Cutter GR, Fox R, Salter A. Uptake and Attitudes About Immunizations in People With Multiple Sclerosis. *Neurol Clin Pract*. 2021;11(4):327-334.
2. <https://www.cdc.gov/flu/fluavaxview/coverage-1920estimates.htm> (Accessed 12/29/2021)





MS MESSENGER

WHAT TO EXPECT ON THE NEXT NARCOMS SURVEY

We received comments in the Fall 2021 survey about the Duke University Religion Index (DUREL). A few examples include “I do not understand why the questions about religion are relevant to this survey” and “I find the religion questions invasive, inappropriate, Christian-centric and of no value to MS research”. The DUREL is a short tool that is meant to capture religious involvement (Koenig, et al. 1997). Spirituality is associated with health and wellness, and has also been associated with some health care decisions. We thought it might be related to brain donation attitude questions included in the fall survey. However, given the wording challenges in the tool and some of the other issues with the measure brought to light, we will not use the DUREL in future surveys.

There were also some comments about the brain donation questions – why these questions were included and how they were relevant to MS. We hope the information in this issue of *NARCOMS Now* provides some explanation for these questions and their relevance to MS research. Additionally, while we did not specifically have an option to skip these questions, we understand if you wish not to complete them and the comment section at the end of the survey can be used to let us know that you skipped them and why.

As a refresher for those who complete your surveys online: you no longer need to go to the NARCOMS website to access your surveys, and you do not need a login username or password. A link to your individual survey is emailed to you. You can just click on that link to access your survey. If you need to take a break, you can use the “save and return” function. A return code will be shown on the screen that you must save for use to access your partially completed survey. You also can enter your email address to have the return code emailed to you.

As always, you can update your contact information with us by calling us at (800) 253-7884 or by email at msregistry@narcoms.org.

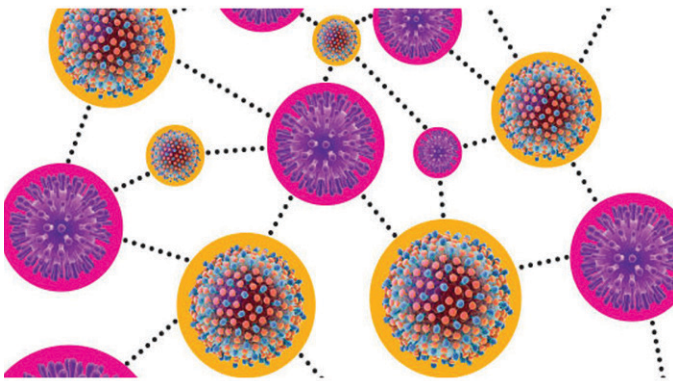
We understand that the past year has been difficult for many of you. If you are experiencing any new or troubling symptoms, physically or mentally, please contact your medical provider. Stay healthy and well. We care about you!



Cytomegalovirus May Cancel Out Other Viruses to Reduce MS Risk

Epstein Barr Virus (EBV) infection is associated with increased risk of multiple sclerosis (MS). A recent study suggests that infection a type of herpesvirus known as cytomegalovirus (CMV) may have a preventive effect against MS.

Both EBV and CMV are common viruses in the human population. According to the Centers for Disease Control and Prevention (CDC), nearly 1 in 3 children in the U.S. has been infected with CMV by age 5, and over half of adults have been infected by age 40 years.



In developing countries, this rate approaches 100%. While CMV usually remains dormant in the body after infection, a reactivation of this virus could be dangerous or fatal if a person is undergoing a procedure such as an organ transplant or bone marrow transplant. Research into prevention and treatment of CMV is advancing.

The relationship between viral infection and MS is not well understood. Some researchers believe that infection with EBV in adolescence or adulthood is necessary for MS to develop although this is unknown. In contrast, a recent study suggests that CMV could protect against the development of MS. Researchers from Sweden studied 670 blood samples from people who later developed MS and a similar number of matched participants who did not develop MS. From the samples, they looked for the presence of antibodies to certain viruses, including CMV, EBV, and another type of herpesvirus, HHV-6A. Samples that were positive for CMV were less common in the MS population versus the controls. And, among the samples that were negative for CMV, many were positive for EBV in the population that went on to develop MS. The researchers concluded, “our results provide further evidence of the negative association between CMV serostatus and MS risk, as well as the significance of HHV-6A and EBV in MS etiology.”

Reference: Grut V, Bistrom M, Salzer J, et al. Cytomegalovirus seropositivity is associated with reduced risk of multiple sclerosis—a presymptomatic case–control study. *Eur J Neurol.* 2021;28:3072-3079.

In Aging MS Patient Population, Little Is Known About Effects of Treatment

The average age of people with multiple sclerosis (MS) has been increasing and is now in the range of 50 to 60 years. This

raises important questions about how to best treat an aging MS patient population. Many clinical trials of MS disease modifying therapies (DMTs) do not include participants over age 50 or 55 years.

At the recent Consortium of Multiple Sclerosis Centers (CMSC) Annual Meeting in Orlando, Florida, Le Hua, MD, Director of the Mellen Program for MS at Cleveland Clinic's Lou Ruvo Center for Brain Health in Las Vegas, shared her findings from a study on DMT use in people over age 60.

"MS treatment needs to adapt with advancing age for a number of reasons," Dr. Hua stated. "Older patients have less inflammatory disease activity." In a retrospective Canadian study of 2,477 patients followed over a mean of 20.6

years, relapse rates decreased by 17% every five years. "As the immune system ages, many factors begin to shift the disease profile," she said. Older adults also have a much higher risk of infections, Dr. Hua added, an important factor in treatment decisions.

In her research study based on the MS PATHS database of 2,738 people with MS with age over age 60 years, most were not taking a DMT. Of those who were taking a DMT, the most commonly used agents were interferons and glatiramer acetate. "We don't know enough about how effective DMTs are in this older population and what happens when the patient goes off the therapy," Dr. Hua said. Most studies investigating discontinuation of DMTs were conducted in younger people, she noted.



Dr. Hua is the lead author of a recent study, “Discontinuation of disease-modifying therapy in patients with multiple sclerosis over age 60,” published in 2019. In this study of 178 discontinuers followed over a median of 4 years, 10.7% later reinitiated DMT, with the primary reasons cited as patient preference and clinical progression. “Interestingly, only one documented relapse was recorded among those patients who discontinued therapy, and the overall cohort had limited disease activity on MRI,” Dr. Hua said.

Dr. Hua stated that she keeps patients under age 60 on therapy as long as it is tolerated and there are no safety concerns. If side effects or safety concerns arise, the person should be switched to a DMT with a more favorable safety profile. For people over 60 years whose disease is stable and have decided to stop therapy, she recommends close monitoring for possible return of disease activity after discontinuation.

A Health Information Registry Reports How People With MS Respond to COVID-19

It was not long into the COVID-19 pandemic before people with multiple sclerosis (MS) began to wonder how their altered immune status might affect their risks for contracting COVID-19 infection or developing a more severe course if infected. Anne Cross, MD, Chair of Neuroimmunology at Washington University in St. Louis, was instrumental in starting the COViMS Registry along with Amber Salter, PhD, of UT Southwestern Medical Center. The registry collects data from

health care providers across North America on how people with MS respond to infection with COVID-19. This information helps MS clinicians to better guide patients and make treatment decisions.

The registry was designed to be easy and quick for healthcare providers to enter patient details (less than 10 minutes). The purpose of the registry is to answer two basic questions:

- How do patients with MS fare after contracting COVID-19 infection?
- How do individual disease-modifying therapies (DMTs) affect outcomes?

In April 2021, a third question was added:

- How does vaccination against COVID-19 impact COVID-19 disease course and outcomes?

At the recent meeting of the Consortium of Multiple Sclerosis Centers (CMSC), Dr. Cross presented what the registry has taught us about COVID-19 infection and MS so far. As of October 5, 2021, there were 3,452 cases of COVID entered into the registry. Among these, 75% were women, 82% had relapsing-remitting MS, and 78% were fully ambulatory. As of October 5, about 41% were vaccinated, 42% were unvaccinated, and 17% had unknown vaccination status. You can see current data at the COViMS website,

“Not surprisingly, older age and male sex were associated with a worse prognosis from COVID,” Dr. Cross said, as these risk factors are also reported in the general non-MS population. “The COViMS registry showed that, for every 10 years of years of age and taking comorbidities and other factors into

account, the risk of death was 87.5% higher if you were 10 years older. In addition, males had a 2.2 times higher rate of death than females, after adjusting for other variables.” Reported deaths (88 as of October 2021) were not higher than that of the general population, Dr. Cross noted. There were some disparate outcomes for Black patients in terms of increased risk for COVID-19 related hospitalizations and need for intensive care or a ventilator, but not an increased mortality rate.

When the question was reversed—how does COVID affect MS?—Dr. Cross noted that other studies suggest that the viral infection does not appear to affect the MS disease course. There does not appear to be an increase in relapse risk due to COVID-19 infection or vaccination, she reported.

In general, COViMS findings were consistent with other registries of COVID-19 infection and MS that are collecting data elsewhere, including Dutch, UK, Italian, and French databases, Dr. Cross said. Current data summaries from the COViMS Registry can be found at www.covims.org/.

Vascular Disease Affecting the Brain May Make MS Worse, Study Shows

People with multiple sclerosis (MS) who also have vascular conditions such as diabetes, high blood pressure, high cholesterol, and heart disease often have a worse course of MS and may require a walking aid earlier than people without these vascular diseases. Researchers from University of Oxford in the



U.K. used post-mortem brain tissue samples to find out why this might be the case. They used brain samples from 42 people with MS ranging in age from 39 to 84 years, and 39 brains from people without MS who served as controls.

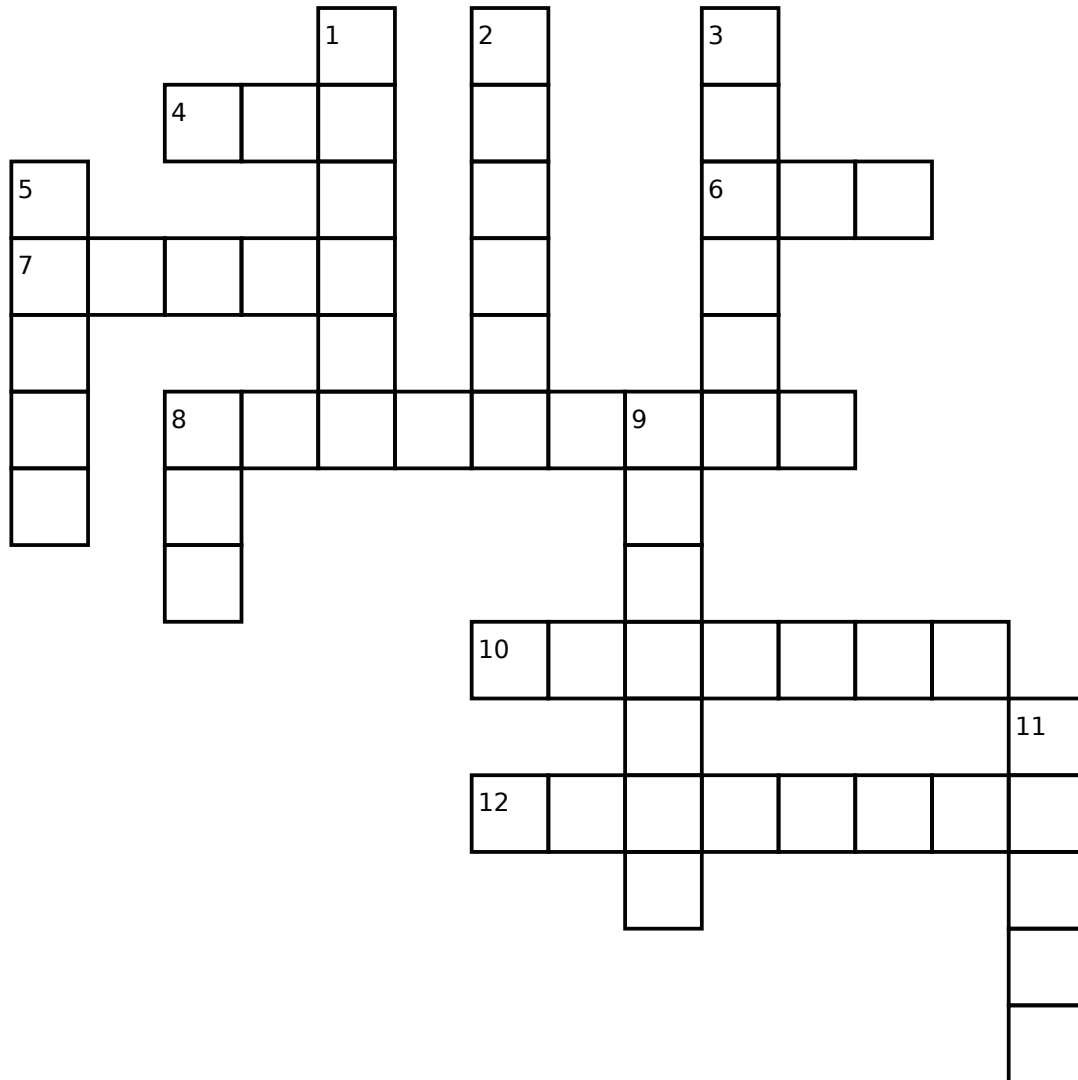
The study found:

- Whole-body cardiovascular disease burden (e.g., atherosclerosis) tended to be lower in people with MS who died at a younger age relative to controls.
- However, cerebral small vessel disease, a condition associated with a high risk of stroke, is more common in people with MS who died at a younger age.

Cerebral small vessel disease may be responsible for many cases of stroke, gait disturbances, and dementia in older persons. The investigators said they do not believe there is a common trigger that makes atherosclerosis more common in people with MS. However, they did comment that the presence of cerebral small vessel disease in people with MS may explain why disability levels are higher in this group.

Reference: Geraldes R, Esiri MM, Perera R, et al. Vascular disease and multiple sclerosis: a post-mortem study exploring their relationships. *Brain*. 2020;143:2998-3012.

Play **CROSSWORD**



Down:

1. This bank does not store money, but biological material known as _____.
2. To allow your brain to be used in research after your death, you will need to do this
3. This nerve-cell lining in the brain is gradually damaged in people with MS
5. Much of our brain tissue is actually composed of this common substance
8. A virus thought to be protective against MS
9. This procedure refers to examination of a body after a person's death
11. Donations of this organ can help with research in MS and other neurologic diseases

Across:

4. A type of imaging often used to examine the brain in MS
6. A virus that is part of the cause of MS
7. These cells act as "wiring" to relay signals in the brain
8. The Mellen Center is located in this city
10. This cancer-causing bad habit is thought to increase risk for developing MS
12. Diseases involving the blood vessels

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NARCOMS NOW

BE PART OF NARCOMS—HELP TO ADVANCE RESEARCH IN MS

Whether you were recently diagnosed with multiple sclerosis (MS) or have lived with it for years, your personal history with the disease helps contribute to improving the lives of others with MS.

Participation in the NARCOMS registry allows you to be part of the process. The data provided by participants gives researchers a clearer picture of how a condition like MS impacts the lives of those affected.

Participation in NARCOMS is confidential—your information is kept secure and completely private. If you have MS and are not yet participating in NARCOMS, or have been out of touch for a while, we would love to hear from you! Contact us at 1-800-253-7884 (toll-free U.S.) or via email at MSRegistry@narcoms.org.



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For more information on the CMSC visit www.mscares.org
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