

How Can Progress Made In Stroke Research Benefit People With MS?

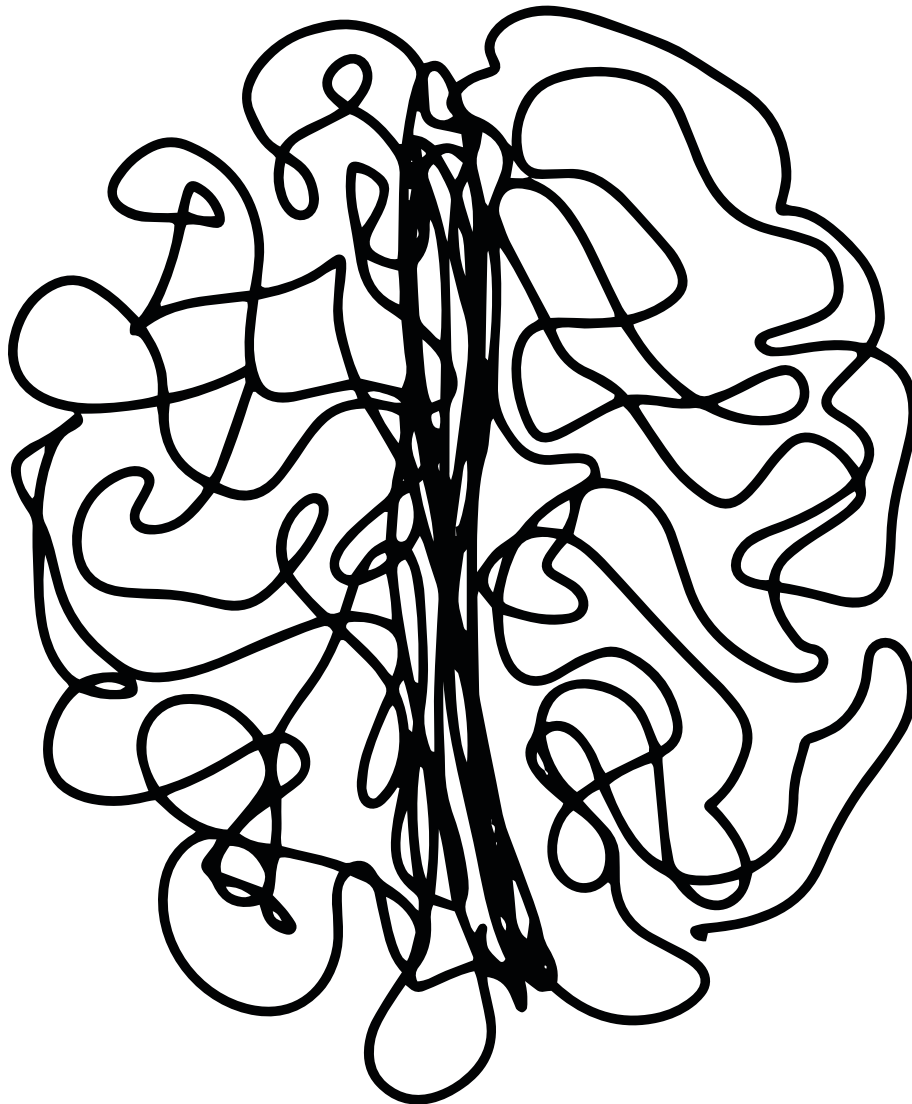


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INFOCORNER



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.



Tell Us Your Thoughts!

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

Email: MSRegistry@narcoms.org

Online: www.narcoms.org/contact-us

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DIRECTOR’S LETTER

Dear NARCOMS Now Readers:

We hope that you are enjoying the summer, staying cool, and getting some sunshine.

In this issue of NARCOMS Now, the Feature Focus examines evidence that specific methods used in stroke rehabilitation may help people with MS achieve greater gains in restoring function.

Repetition training and constraint-induced movement therapy are presented as examples of rehabilitation concepts that may benefit people with MS.

In the SnapShot, we examine the vaccination history of NARCOMS participants. We compare data from the Fall 2020 survey pertaining to vaccination for several diseases including influenza with data from the Spring 2021 survey concerning the COVID-19 vaccination. In the MS Messenger, there is a link to a short survey to help us determine the survey information most relevant to NARCOMS participants.

In the MS News sections, we review a recent report about the interaction between disease modifying therapies for people with MS and the COVID-19 vaccination. In addition, one of the authors of that report, UCSF neurologist Joseph J. Sabatino, Jr., discusses the implications of the findings. We also describe a study examining the association of alcohol intake and smoking on disease risk and neurodegeneration in people with MS. Finally, we report a study examining cells at the edge of MS lesions for clues as to whether the lesion will become chronic.

We hope you find this issue interesting and informative. We appreciate your participation in the NARCOMS registry and thank you for your effort and contribution to MS research.

Sincerely,

Robert Fox, MD

Managing Director, NARCOMS



Robert Fox, MD



FEATURE FOCUS

How Can Progress Made In Stroke Research Benefit People With MS?

Rehabilitation expert says that repetition-based skills used in stroke may help people with MS achieve greater gains in restoring function

Dale, a Wisconsin-based clergyman, suffered a severe stroke at age 65 years, but managed to bounce back. A later fall caused severe bleeding inside his skull, made worse by the use of blood-thinning

medication. This second event left him paralyzed. But after nearly a year of intensive rehabilitation, as an inpatient and later an outpatient, Dale was able to walk again.



Michelle Ploughman, PhD

To Regain Limb Function, Restrain the Good Limb

To retain function over the long-term, add in behavior change techniques

Lack of physical activity is a problem for much of the population, whether or not they have MS. Even for those who participate in clinical trials involving physical training, we know little about how much that activity is maintained in their everyday lives. “Despite the substantial number of physical training trials for MS completed over the past decade, chronic physical inactivity of persons with MS has not budged,” noted Victor Mark, MD, Associate Professor of Neurology at the University of Alabama at Birmingham.

Most MS physical training programs employ aerobic exercise, progressive resistance training, stretching, balance training, and respiratory training. These techniques are designed to

increase limb power, walking speed and endurance, and general physical fitness. However, a technique commonly used in stroke rehabilitation has been noticeably absent in MS rehabilitation. This technique is called constraint-induced movement therapy (CIMT). The approach involves forcing the person to use an impaired limb, such as an arm, by restraining the “good” limb, preventing it from being used in the task.

Dr. Mark and other University of Alabama at Birmingham researchers recently surveyed 500 NARCOMS registry participants. The NARCOMS participants were asked about their willingness to try this rehabilitation technique. Of the 281 people who responded, 90% expressed interest in participating in lower extremity CIMT. Most of those who completed the survey selected either “Very likely” or

Canadian rehabilitation expert Michelle Ploughman, PhD, believes that the type of repetition training that is successful in stroke rehabilitation should be used more in people with MS. Research on rehabilitation after stroke has advanced greatly in the past two decades. Some consider stroke recovery to be ahead of the progress made in MS rehabilitation during that same time period. Dr. Ploughman, Associate Professor at Memorial University Faculty of Medicine and Co-Director of the Rehabilitation Research Unit at Newfoundland and Labrador, found that the number of clinical studies on exercise-based rehabilitation in stroke increased seven-fold between the years 2000 and 2015. Progress in MS was

comparatively slower, with the number of studies barely doubling during that time.

Research in stroke has shown that frequent repetition of task-specific skills (such as using a fork, reaching for objects, or typing) helps with relearning lost abilities. The concept of “neuroplasticity” refers to the potential of the brain to reorganize its “wiring” or circuitry after damage in order to regain or relearn lost functions. “You gain what you train,” Dr. Ploughman stressed. “Research in stroke has proven that task specificity—doing the task that you want to train for—is important. Simply giving a drug or electrical brain stimulation on its own doesn’t seem to do much of anything.”

“Likely” for each key procedure. Respondents who had previous physical therapy were more open to participating in CIMT as compared to those who did not have physical therapy.

Translating rehabilitation training to the home setting

Many MS rehabilitation trials are too short-lived and do not follow up once a person has stopped the training. An exception was an intensive training program that involved supervised, task-oriented physical lower-extremity practice with the good leg restrained, 3.5 hours per day on consecutive weekdays for 3 consecutive weeks. This intensive training program may have been more successful because it involved techniques to help promote behavioral change in the individual. These include steps such as:

- behavioral contracting
- goal setting and feedback

- prescribed unsupervised home practice of activities
- self-monitoring (keeping a diary of daily activity, reporting on adherence with homework task assignments)
- daily administration of a structured interview
- motivational counseling
- regular problem-solving discussions with a therapist.

In the intensive program mentioned above, participants made significant gains in lower extremity function and most were able to maintain these benefits at the one-year follow-up. Two of the participants had maintained their gains at the four-year follow-up. “This suggests that [lower extremity] CIMT is safe and can produce improved spontaneous lower extremity use in the community on a persistent basis,” the researchers suggested.

Rehabilitation techniques used in MS tend to be generic, she said, like strength training or balance training, rather than impairment-specific. And the timing may be based on the idea that people with MS need to rest after an acute attack. “People with MS are basically told after they have a relapse, ‘Go home, go to bed, don’t exert yourself.’ Right now our best practices don’t offer an alternative, but I don’t think that’s quite right. I think we should allow a small window of time for the person to feel a little bit better, and then we start rehabilitative programs that focus on restoring function. In MS, many rehabilitation approaches aim to compensate for something that is lost. If your legs aren’t working correctly, we’ll give you a cane. That’s not restoration, that’s compensation.”

Stroke and MS are very different neurologic disorders, noted Dr. Ploughman. In stroke, disability is caused by sudden damage to certain sections of the brain, while in MS it is an ongoing process of demyelinating nerve cells. Still, many concepts learned from stroke research could help advance practices in MS, she said. “I think we can take a lot of what we understand about neuroplasticity from stroke because it’s still a lesion. We have a destructive process in the brain that causes the cells to die. There’s an inflammatory process, and a repair process. Eventually, that window to repair closes.”

People with MS, especially those with progressive disease, have awaited the introduction of drugs that can successfully restore damage caused by MS. Dr. Ploughman pointed out that many large-scale trials of

experimental neurorepair treatments may be unsuccessful because the trials do not incorporate rehabilitation as part of the study. “While it’s important to see what these drugs can do, the drug is not likely to work if the part of the brain/body they are trying to repair is not being stimulated to do its part,” she argued. Instead, the drug trial should include people who do specific exercises to restore function, to see if the drugs help to amplify those benefits. The trials could include a control group that took the drug but did not do the prescribed exercises.

Dr. Ploughman also believes that many MS rehabilitation trials do not measure the longer-term benefits of treatment. Often, the gains a person makes during rehabilitation revert back to baseline after the trial is over. It is important to plan longer-term MS rehabilitation trials, she suggested, to find out whether the benefits are sustained. If the program does not have lasting benefits in skills like walking, balance, or strength, this would suggest that the skills were not incorporated into the person’s everyday life.

Some rehabilitation techniques are not right for an individual because the targeted area has been immobile or nonfunctional too long for that approach to make an impact. “We are not looking to be restrictive in the types of rehabilitation we offer patients,” Dr. Ploughman said. “The important point is that different patients need different things. We need to use a targeted approach that is right for the individual.”



SNAPSHOT

WHAT WE CAN LEARN FROM NARCOMS SURVEYS

Vaccination

In a recent issue of *NARCOMS Now* (Vol. 10, Issue 4), we talked about Fall 2020 Survey results of the vaccination history of participants. The survey asked about vaccination for several diseases including influenza.

Influenza is a common infection, and people with multiple sclerosis (MS) are more likely to have complications, such as needing to be hospitalized, if they get influenza. Taking the flu shot (vaccination) can reduce the risk of getting influenza and the risk of complications. The Fall 2020 survey showed that people with MS are more likely to get the influenza vaccination compared to the general population. However, the vaccination rate for people with MS remains below the 100% recommended by the American Academy of Neurology.

The NARCOMS Spring 2021 Survey asked

participants whether they had received any COVID-19 vaccination. The survey also asked about factors that may influence hesitancy in getting the vaccine. In addition, participants were asked whether they had received the influenza vaccination. Participant characteristics such as age, sex, race, education, drinking alcohol, smoking, and level of disability were compared between people who did and did not get a COVID-19 vaccine. These findings were recently published in the journal *Multiple Sclerosis Journal – Experimental, Translational and Clinical*.¹

Overall, 4955 NARCOMS participants responded to the survey and completed the questions specific to the study. These participants had an average age of 64 years, and approximately 81% were women and

Table 1: Participant receipt of COVID-19 or Influenza Vaccines

Participants	COVID-19 Vaccine (%)	Influenza Vaccine (%)
All participants	84	75
Age group (years)		
18–64	81	71
≥65	87	79
Patient-Determined Disease Steps (PDDS)		
Mild (0-1)	86	77
Moderate (2-4)	85	77
Severe (5-8)	81	73

PDDS: Patient Determined Disease Steps

88% were White. About 85% received a COVID-19 vaccine (Moderna, Pfizer-BioNTech, Other). The rate of vaccination was higher among respondents aged 65 years or more, than among those aged 18-64 years (Table 1). Participants with more severe disability were less likely to be vaccinated (Table 1). Higher income, more education, physical activity, alcohol intake, and the use of disease modifying therapies (DMTs) were associated with increased likelihood of vaccination. Smoking, anxiety, and depression reduced the likelihood of receiving the COVID-19 vaccine. When the analysis included all factors together, disability was less of an influence on vaccination uptake, while the use of a DMT increased the likelihood of vaccination. Of the respondents, 75% received the influenza vaccine (Table 1). Anxiety and depression increased the likelihood of influenza vaccination.

Overall, the strongest predictor of COVID-19 vaccination was receipt of the influenza vaccine. A previous report showed that NARCOMS participants who did not get the

annual influenza vaccine reported concerns regarding vaccine safety, side effects, and efficacy in the context of MS. The current study showed similar worries about the COVID-19 vaccine. Concerns included how well the vaccines work, side effects (particularly long term), the vaccine approval process, and the participant’s health conditions. The most common reason for not receiving the COVID-19 vaccine was concern about possible side effects (Figure 1). Other reasons included beliefs that the vaccine was unnecessary, it did not work, or that the vaccine was not available. Of the respondents, 7% reported that their doctor advised against receiving the vaccine.

People living with MS were more likely to get the COVID-19 vaccine than the influenza vaccine, although the types of concerns about the vaccines were similar. These concerns may indicate a lack of information about the safety and efficacy of vaccines for people living with MS.

Reference

1 Marrie RA, Dolovich C, Cutter GR, Fox RJ, Salter A. Attitudes toward coronavirus disease 2019 vaccination in people with multiple sclerosis. *Multiple Sclerosis Journal - Experimental, Translational and Clinical*. April 2022. doi:10.1177/20552173221102067

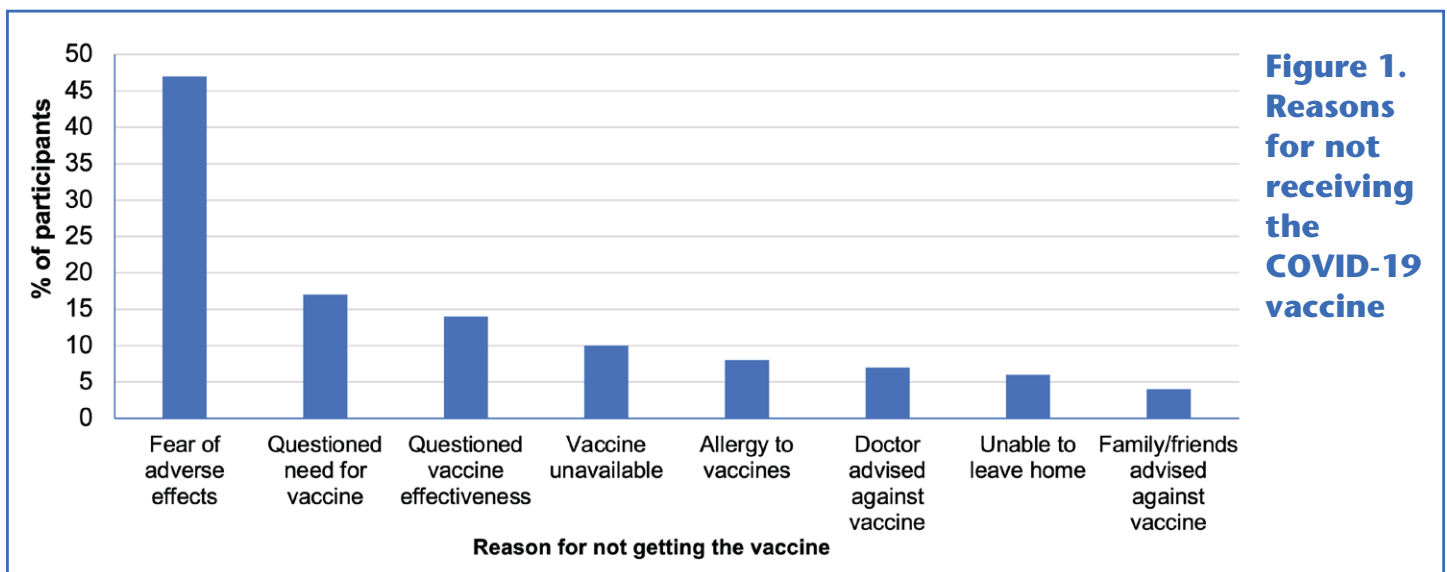


Figure 1. Reasons for not receiving the COVID-19 vaccine



New Study Shows How MS Disease-Modifying Therapies Affect COVID Risk in Vaccinated Individuals

An important question asked by people with multiple sclerosis (MS) is whether the immune-modulating drugs they are taking have any effect on their ability to fight off COVID-19 and their ability to benefit from vaccination against COVID-19. Researchers from the University of California San Francisco (UCSF) studied a group of 80 people with and without MS. Those with MS were either untreated or taking one of the following disease-modifying therapies (DMTs):

- 1) glatiramer acetate (Copaxone)
- 2) dimethyl fumarate (Tecfidera)
- 3) natalizumab (Tysabri)
- 4) a sphingosine-1-phosphate (S1P) receptor modulator such as fingolimod (Gilenya) or siponimod (Mayzent)
- 5) anti-CD20 drugs such as ocrelizumab (Ocrevus)

When it comes to fighting off COVID, the immune system uses more than one approach. It uses antibodies, and it deploys the main foot soldiers of the immune system, T cells. The UCSF group measured antibodies against COVID, as well as T-cell responses, after the participants had received vaccinations for COVID. People with MS who were taking DMTs from the first three categories listed



above (Copaxone, Tecfidera, or Tysabri) had a response to the COVID vaccine similar to those of the non-MS and untreated participants. However, those taking drugs in categories 4 and 5 (S1P modulators or anti-CD20 drugs) had a diminished antibody response to the vaccine. This in turn could reduce the protection provided by the vaccine in preventing COVID infection or severe disease. Similar results were found in another study led by investigators in the Multiple Sclerosis Partners Advancing Technology and Health Solutions (MS-PATHS), where antibodies against COVID were measured after participants received vaccinations for COVID. The MS-PATHS also found that those taking S1P modulators or anti-CD20 drugs were less likely to have a response to the COVID vaccine.

NARCOMS Now discussed the implications of these findings with UCSF neurologist Joseph

J. Sabatino, Jr., who co-led the study with his colleague Riley Bove, MD.

Your research suggests that people receiving S1P modulators or anti-CD20 agents have reduced vaccine protection against contracting COVID. Is this correct?

Dr. Sabatino:

Antibodies, in particular neutralizing antibodies, are the key immune factor that prevents infection from COVID, including breakthrough infections among people who are vaccinated.



Our work and that of others raises a concern that patients with MS on anti-CD20 and S1P receptor modulators may be at higher risk for breakthrough COVID-19 infection because of the impaired vaccine-induced antibody responses.

Your group also showed that T-cell function is preserved in these people, which may help to fight off an infection that has already happened.

Dr. Sabatino: That's correct. T-cells come into play later, after a breakthrough infection occurs. We did show that T-cell responses remain intact, but we don't know for sure how much this protects against severe infection. Most people treated with anti-CD20 and S1P modulators still seem to recover well from COVID-19. This suggests that T cells and other immune cells can make up for the lack of B cells (an effect caused by the drugs). We do think that people on these agents may still

be at higher risk for more severe COVID-19 compared to vaccinated MS patients on MS therapies.

How does this information affect the way you advise your patients with MS?

Dr. Sabatino: First, I think we should make all reasonable efforts to fully vaccinate all of our patients with MS, regardless of treatment status. For anti-CD20 and S1P-treated patients, I believe it's important to advise patients that they are partly protected following vaccination, but are still likely to be at higher risk for breakthrough infection, compared to fully vaccinated patients on other treatments. A third vaccination is unlikely to significantly improve protection in patients using anti-CD20 agents in particular, unless there is an adequate pause in treatment to allow B cells to return. Some clinicians recommend an extended dosing interval for anti-CD20 therapies for some patients, but this must be an individualized decision. Another option is using pre-exposure prophylaxis (Evusheld) in these patient groups to protect against breakthrough COVID infection. At present, we know very little about the long-term impact of using this approach in people with MS. Again, this should involve a personalized discussion between the clinician and the patient.

References

- Sabatino JJ, Mittl K, Rowles WM, et al. Multiple sclerosis therapies differentially affect SARS-CoV-2 vaccine-induced antibody and T cell immunity and function. *JCI Insight*. 2022;7(4):e156978.
- Cohen JA, Bermeil RA, Grossman CI, et al. Immunoglobulin G immune response to SARS-CoV-2 vaccination in people living with multiple sclerosis within Multiple Sclerosis Partners Advancing Technology and Health Solutions. *Mult Scler*. 2022;28:1131-1137.

New study helps place into context the effects of alcohol, smoking, and obesity on MS

Lifestyle factors like smoking, alcohol use, and excess body weight have long been linked to multiple sclerosis (MS). Some studies have found that these lifestyle factors affect the risk of MS. Other studies have focused on how these factors affect the severity of MS. However, there are still a lot of questions about how important these modifiable factors may be and how they relate to one another.

A group of researchers from London, England, used a large community database of health information from nearly 72,000 people aged 40 to 69 years. Of these participants, 179 had MS (73% of those with MS were women). Other co-existing health conditions were considered among the control population. They compared the three lifestyle factors (smoking history, body weight, and alcohol use) with two outcomes. First, they looked at how these factors affect the likelihood of being diagnosed with MS. They also looked at the thickness of the optic nerve, which is a measure of neurodegeneration in MS.

The results showed:

- Being a current or previous smoker was associated with an approximately 3-fold and 1.6-fold greater chance of having MS, respectively, compared to having never smoked. This was true whether the control population had comorbid conditions or not.
- Moderate alcohol intake was associated with lower odds of having MS when the comparison group was healthy participants.



In the group with comorbidities, no difference was shown between alcohol intake and the odds of having MS.

- Being obese was associated with greater odds of having MS when compared with the healthy control group, but not the control group with comorbidities.

The authors noted that using a control population with and without comorbid health conditions helped to put these lifestyle risk factors into context. “Risk factors and protective factors are likely similar across various diseases, which can obscure associations,” they noted.

While moderate alcohol use appeared to have a protective effect, this may be because people who are sicker are more likely to quit alcohol use altogether. In the optic nerve analysis, high alcohol consumption (daily or almost-daily drinking) was associated with a thinner optic nerve lining, indicating more severe MS. “Participants with self-reported high alcohol intake (daily/almost daily) had almost 5% thinner [optic nerve measure], a substantial difference in retinal thickness,” the authors wrote. Other studies have shown that high alcohol use is associated with lower (smaller) brain volume and gray matter volume.

“The presented findings suggest that current recommendations for the general population regarding smoking and moderating alcohol

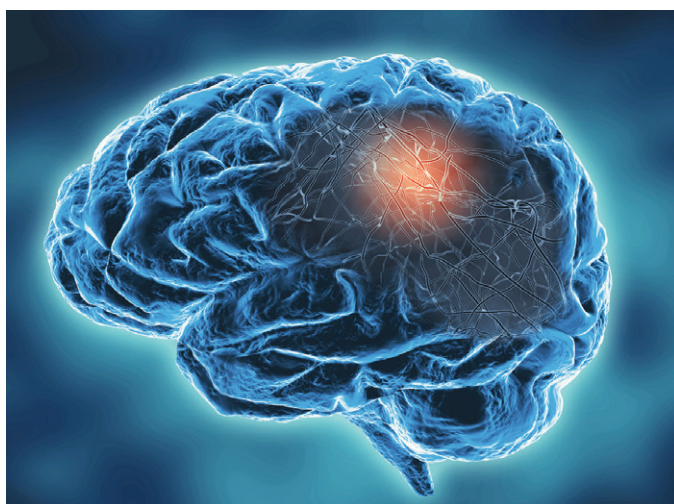
consumption may be particularly relevant for individuals who have been diagnosed with MS or who are at risk for the disease,” they concluded.

Reference

Kleerekooper I, Chua S, Foster PJ, et al. Associations of alcohol consumption and smoking with disease risk and neurodegeneration in individuals with multiple sclerosis in the United Kingdom. *JAMA Netw Open*. 2022 Mar; 5(3): e220902.

A Closer Look at MS Lesions May Uncover Ways to Interfere with Chronic Inflammation and Cell Damage

What determines if a multiple sclerosis (MS) lesion will get better, or if it becomes a chronic lesion that promotes ongoing cell damage? Recent research shows that certain cells found at the edge of MS lesions—and how they behave soon after the lesion is formed—may influence whether the lesion will become chronic. Learning more about this cell behavior may guide the way toward new treatments that target this process.



Some MS white matter lesions have edges that are persistently inflamed. These lesions are referred to as chronically active or

“smoldering” lesions. They are associated with more aggressive MS and neurodegeneration. However, the underlying process that causes this is not clear. Researchers from the National Institute of Neurological Disorders and Stroke (NINDS), Johns Hopkins University, and several other organizations are looking closer at the edges of MS lesions to figure out what is going on and why.

Oligodendrocytes are the myelin-producing cells of the brain and spinal cord. When the researchers looked at brain white matter in adults without MS, they found mainly healthy oligodendrocytes. In contrast, the edges of chronic active lesions in people with MS featured more immune cells. The chronic active lesions also had relatively fewer oligodendrocytes and cells that can turn into oligodendrocytes. “Stressed” oligodendrocytes were particularly likely to appear at the lesion’s edge.

Using a technique called RNA sequencing, they found two main types of inflamed cells at the edge of MS lesions: microglia-inflamed cells and astrocyte-inflamed cells. In the microglia-inflamed cells, a type of protein complex called C1q may be involved. Developing therapies to inhibit C1q may be one way to address chronic white matter inflammation, the group said.

“These developments open the possibility of testing new therapeutic approaches for degenerative aspects of MS not targeted by currently approved treatments,” the authors suggested.

Reference

Absinta M, Maric D, Gharagozloo M, et al. A lymphocyte-microglia-astrocyte axis in chronic active multiple sclerosis. *Nature*. 2021 Sept;597:709-714.

Alcohol and Your Health

Guidance from the Centers for Disease Control and Prevention (CDC)

Excessive drinking causes >140,000 deaths each year in the U.S., based on 2015–2019 data. A **standard drink** contains 0.6 ounces (14.0 grams or 1.2 tablespoons) of pure alcohol. This means about 12 ounces of beer, 8 ounces of malt liquor, 5 ounces of wine, or 1.5 ounces of 80-proof distilled spirits or liquor.

Excessive drinking includes binge drinking, heavy drinking, and any drinking by pregnant women or people younger than age 21.

- Binge drinking is consuming 4 or more drinks during a single occasion for women and 5 or more drinks during a single occasion for men.
- Heavy drinking is defined as consuming 8 or more drinks per week for women and 15 or more drinks per week for men.

Most people who drink excessively are not alcoholics or alcohol dependent.

Moderate drinking is 2 drinks or fewer in a day for men or 1 drink or fewer in a day for women. Drinking less is better for health than drinking more.

People who should **not** drink any alcohol include those:

- Younger than age 21
- Pregnant or may be pregnant
- Driving, planning to drive, or engaging in activities requiring skill, coordination, and alertness
- Taking certain prescription or over-the-counter medications that may interact with alcohol
- Suffering from certain medical conditions
- Recovering from alcoholism or unable to control the amount they drink

Short-Term Health Risks

- Injuries, such as motor vehicle crashes, falls, drownings, and burns.
- Violence, including homicide, suicide, sexual assault, and intimate partner violence.
- Alcohol poisoning, a medical emergency that results from high blood alcohol levels.
- Risky sexual behaviors, including unprotected sex or sex with multiple partners.
- Miscarriage and stillbirth or fetal alcohol spectrum disorders (FASDs)



Long-Term Health Risks

- High blood pressure, heart disease, stroke, liver disease, cancer, and digestive problems.
- Weakening of the immune system, increasing the chances of getting sick.
- Learning and memory problems, including dementia and poor school performance.
- Mental health problems, including depression and anxiety.
- Social problems, including family problems, job-related problems, and unemployment.
- Alcohol use disorders, or alcohol dependence.

Adapted from <https://www.cdc.gov/alcohol/fact-sheets/alcohol-use.htm>



MSMESSENGER

We are interested in your opinion!

We have created a short survey (2 questions!) for you to indicate what NARCOMS data may be of interest to you – in NARCOMS Now and your own data over time.

Please access the survey using the QR code or the short survey link (<https://redcap.link/6r0sdm8l>).

Your participation here will help us focus on the most relevant information for NARCOMS participants.



As always, you can update your contact information with us by email at msregistry@narcoms.org.

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.

The Spring 2022 survey is closed! Please be sure to return your paper surveys if you have not done so yet.

Thank you for your participation! The Fall 2022 survey will be out in **October**.

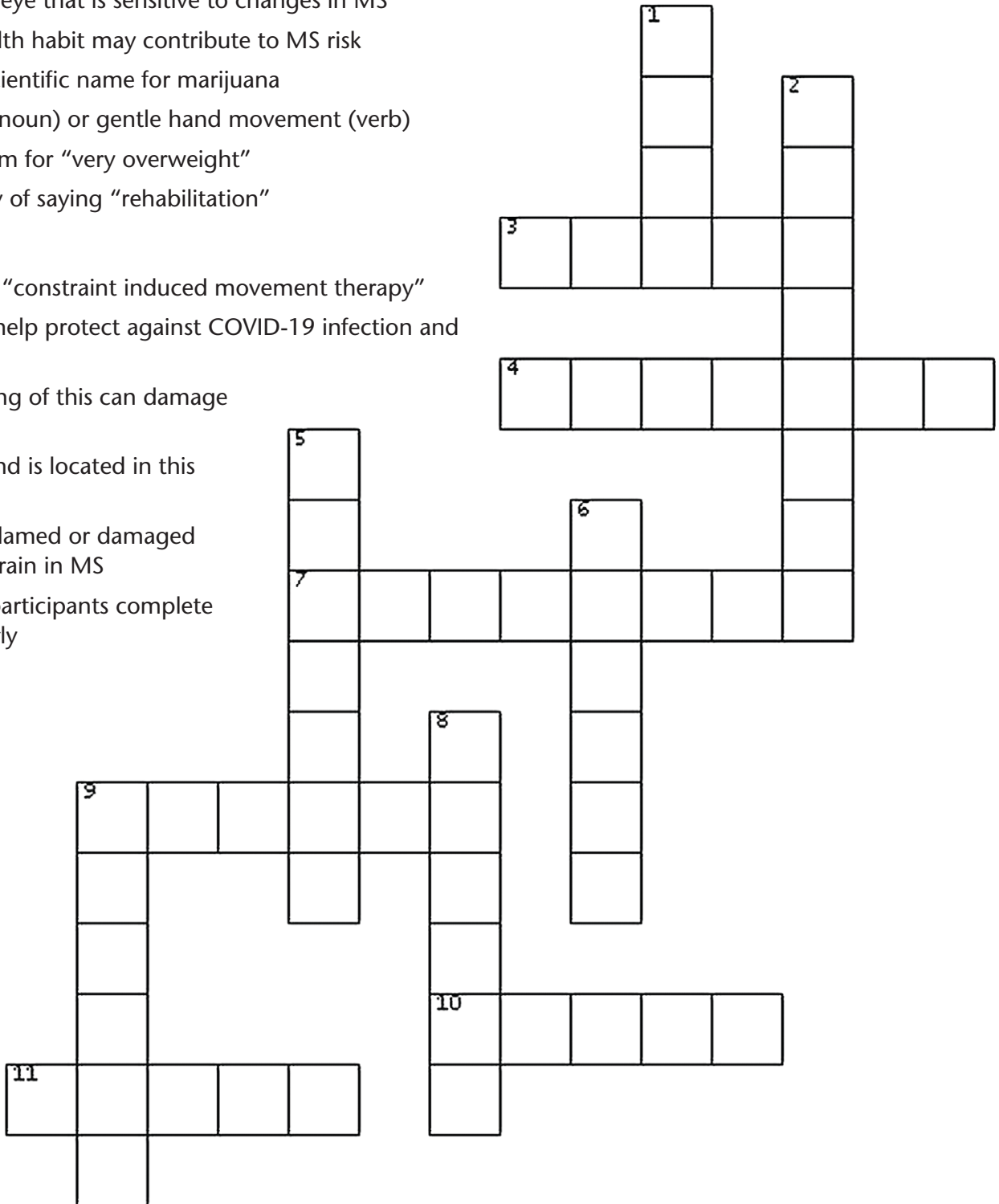
Play **CROSSWORD**

ACROSS

3. Nerve in the eye that is sensitive to changes in MS
4. This bad health habit may contribute to MS risk
7. Part of the scientific name for marijuana
9. Brain injury (noun) or gentle hand movement (verb)
10. Another term for "very overweight"
11. Shorter way of saying "rehabilitation"

DOWN

1. Acronym for "constraint induced movement therapy"
2. These shots help protect against COVID-19 infection and severe illness
5. Heavy drinking of this can damage brain cells
6. Newfoundland is located in this country
8. Name for inflamed or damaged area of the brain in MS
9. NARCOMS participants complete these regularly



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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 via email at MSRegistry@narcoms.org.



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