

Clinical research updates

Tirisham Gyang, MD

The Ohio State Multiple Sclerosis Center is actively involved in a variety of clinical research projects that are open for enrollment. We're recruiting patients for several studies and have upcoming studies starting very soon.

Research participation is one way to contribute to the advancement in medical science. Discoveries from research studies can provide valuable information that benefits all patients with MS and other disorders. There are many ways to participate in research. Involvement can be as easy as providing a blood sample to help in our understanding of the disease process. More complex studies may require further involvement, such as testing the effectiveness of potential new drugs for MS.

Every research study aims to have a very diverse representation, as this gives us a better understanding of how MS affects different people. As you review the studies below, consider if there is one that may be a fit for you. You can contact us if you need more information about any of these studies.

Current studies

BTK inhibitors in relapsing and progressive forms of MS

Enrollment is open for two studies investigating the effectiveness of a new pill in both relapsing remitting and primary progressive MS. We're also in

the process of opening enrollment for patients with secondary progressive MS.

The oral drug under investigation works by blocking an enzyme called Bruton's tyrosine kinase (BTK); drugs in this category are called BTK inhibitors. A unique feature of these drugs is the ability to affect not only circulating immune cells but also resident immune cells in the brain called microglia. Preliminary studies have shown positive outcomes in patients with MS. In phase II studies, there was a significant reduction in new and active MRI lesions in patients with relapsing forms of MS. There's also hope that these drugs will prevent the progression of disability in patients with progressive forms of MS.

Enrollment is open for these studies. Please contact us if you're interested in learning more and in participating.

Neuroscience Research Institute Brain Bank & Biorepository (NRI-BBB)

Led by MS specialist Benjamin Segal, MD, chair of Neurology and director of the Neuroscience Research Institute, and his colleagues, the NRI-BBB collects and stores biospecimens like blood, spinal fluid and tissue from patients undergoing testing for clinical care. When you see your doctor and undergo tests (such as blood and spinal tap tests) for the management of your illness, you can participate in this study by providing an extra sample of blood or spinal fluid to be stored for future research. These samples will be collected while you're undergoing tests that are already needed for your clinical care. These biosamples are essential to increasing our understanding of the disease process in MS and other disorders.

Aging in MS

Yinan Zhang, MD, is recruiting for a study to investigate biological aging in individuals with MS with the goal

of determining if those individuals age differently from those without MS. A person's biological age is measured by various biomarkers that reflect the genetic and molecular changes accumulating over time that contribute to their age-related decline in function. An individual's biological age may be older or younger than their chronological age, and people whose biological age is older than their chronological age may be at risk of worse health-related outcomes.

The premise for the study is based on observations of inflammatory mechanisms in both aging and MS. The study will measure markers of biological aging from MS participants' blood and compare them to those from people without MS and correlate the biomarkers with clinical and MRI outcomes pertinent to MS.

Neuromuscular function in MS

Another study led by Dr. Zhang has also just started recruitment. This is a study of neuromuscular function in older adults with MS. Progressive weakness is a common finding in older MS patients, but there is uncertainty regarding how much this is due to aging or MS. We're conducting a study to determine neural and muscular contributions to strength in patients over the age of 60 with MS who are ambulatory. Participants will undergo testing of neuromuscular function of the leg and receive an MRI to determine leg muscle mass. The study is conducted at Ohio University in Athens and participants will be compensated for their time and travel.

If you're interested in any of these trials, please contact us at **614-293-6123** or **msresearch@osumc.edu**.

Multiple Sclerosis patient newsletter

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MS and aging

Yinan Zhang, MD

MS is traditionally referred to as a disease of the young, but the number of older adults with MS is steadily rising. A well-cited study from 2019 showed the age range with the highest MS disease prevalence is between 55-64 in the U.S. As people with MS age, so do their experience with the disease and its associated symptoms.

Young adults with MS are more likely to have relapses and new lesions develop on their MRIs, but their ability to recover from a relapse is also more robust. On the other hand, older adults are less likely to experience a relapse or develop lesions on their MRIs. Instead, they're more likely to experience disease progression, which refers to the gradual worsening of neurological deficits not attributed to relapses. This

commonly presents with symptoms such as worsening of weakness, walking and balance, and it can happen slowly over the course of a few years.

Age is one of the main risk factors for disease progression, which occurs most commonly in a person's late 40s and 50s. There are many processes of aging that contribute to the disease course in MS. A lot has to do with changes in mechanisms of inflammation and neurodegeneration. Inflammation in younger patients with MS occurs in more focused areas of the brain and spinal cord and presents as new MRI lesions and/or relapses. In older patients, inflammation becomes more diffused throughout the central nervous system and contributes more to neurodegeneration. This process is difficult to measure with lab tests or conventional MRI scans, which is often why your provider may tell you that your MRIs are unchanged despite your sometimes feeling like your symptoms are gradually getting worse.

In regard to continuing treatment for MS, patients usually remain on a disease-modifying therapy to prevent new lesions and relapses, even if this is rarer with age. Studies have shown that MS drugs are associated with more side effects in older adults, and many have debated the risks versus the benefits of treating MS in the elderly. For these reasons, there's a lot of interest from both patients and providers on the optimal timing of treatment discontinuation. There are ongoing studies to determine the safety of stopping treatment in middle-aged adults with stable MS.

Finally, normal aging is associated with changes that often overlap with MS symptoms. Talk to your provider about any new or worsening symptoms that you experience. At The Ohio State University, we have a multidisciplinary team of specialists to provide optimal management of MS whether you're newly diagnosed or have had the disease for decades.



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MS staff spotlight: Yinan Zhang, MD

Hometown: I was born in and grew up in Xi'an, China, and moved to the U.S. in grade school. I've lived in Texas most of my life until now.

Education/Training:

- Undergraduate: Washington University in St. Louis
- Medical school and neurology residency: University of Texas Southwestern Medical Center
- Fellowship: Icahn School of Medicine at Mount Sinai

Clinical and research interests: During my neurology residency, I saw a growing need to improve care for people who are aging with MS. While our disease-modifying therapies for MS are generally very effective and well-studied in younger patients, there are fewer studies on how well these medications work in older adults. My research focuses on how aging affects MS and our patients' experience with various MS symptoms as they age. The goal is to improve quality of life for older adults with MS, taking into account each individual's unique aging biology.

As a clinician, I enjoy getting to know my patients over time and being their provider for potentially many years. Everyone's experience with MS is different and so are their needs, and I find it rewarding to work with each individual to come up with the best therapy plans for them to live their best life with MS.

Hobbies and interests: Outside of work, I enjoy building custom Lego creations. Many years ago, I displayed my works at the Columbus Museum of Art well before I moved here! And of course spending time with my family — here is a photo with my daughter Riley at the Newark Strawberry Festival.



Aquatic exercise and MS

Brooke Gaul, DPT, PT

Exercise focuses on progressively increasing your movement to help your body adapt to activity, and in MS specifically, it reduces the re-conditioning process common after a relapse. Both generalized and MS-specific aquatic classes have been found to benefit people with multiple sclerosis (PwMS). The buoyancy of water assists in upright support and un-weighting, making it easier to tolerate and decreasing the risk of falls and injury. If you're concerned with overheating, consider exercising in a cold pool, which helps dissipate heat quickly.

Research studies have demonstrated multiple benefits of aquatic exercise for PwMS, including reduced severity of physical fatigue, improved mood, improved motivation, improved balance and decreased muscle spasms and pain. Consider planning other, more physical activities on days you're not exercising in the pool to limit

fatigue. The types of exercise you can perform in water are widespread and include stretching, walking, strengthening and balance.

You don't need to have experience with exercise or aquatic therapy to gain benefits from being active in the pool! Start with what you can tolerate according to your symptoms twice each week, building up to 45-60 minutes to exercise at a time.

PwMS report that satisfaction with aquatic exercise depends on the personality of the instructor, feelings of acceptance in the environment and the "best fit" exercise for them. Here are some things to consider before starting this form of exercise:

1. Pool temperature – prevent overheating by keeping the temp below 84 degrees
2. Adaptive equipment available
3. Pool entrance/exit – can you navigate stairs or do you need a chair lift
4. Contraindications for exercising in the pool (incontinence, open wounds)

If you have health-related concerns, seek out a physical therapist who will assist you in creating an

individualized aquatic exercise program.

Neurologic physical therapists are available for aquatic rehab at Ohio State's Outpatient Rehabilitation Martha Morehouse and Outpatient Rehabilitation Powell YMCA. The pool at Martha Morehouse is heated above the recommended temperature for individuals with MS who are heat sensitive, whereas the Powell YMCA location has warm and cold pool options. Ohio State also has a Warm Water Pool Program through the Wellness Center at Martha Morehouse. For more information on that, call **614-293-2800**. Please note, the pool at Martha Morehouse will be closed September 1, 2022, and will reopen October 3, 2022.

In order to participate in an initial assessment and aquatic PT treatment, patients need to obtain a referral from any of their physicians (PCP, neurologist, PM&R, etc.) by contacting them via phone/MyChart or discussing it at their next visit.

To schedule an appointment with the rehabilitation department, call **614-293-4523**.

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