

Exercise/memory research for Parkinson's

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Researchers from the University of Maryland School of Medicine and the Baltimore VA Medical Center have launched a study of exercise and computerized memory training to see if those activities may help people with Parkinson's disease prevent memory changes. The type of memory that will be examined is known as "executive function;" it allows people to take in information and use it in a new way. Many Parkinson's patients develop problems with executive function, which can prevent them from working and may eventually require a caregiver to take over more of the complex cognitive tasks of daily living.

"Studies of normal aging show that [memory](#) and executive function can be improved with [exercise](#), such as walking several days a week," explains Karen Anderson, M.D., principal investigator and an assistant professor of neurology and psychiatry at the University of Maryland School of Medicine. Dr. Anderson is also a neuro-psychiatrist at the Maryland Parkinson's Disease and Movement Disorders Center at the University of Maryland Medical Center and a clinician in mental health at the Baltimore VA Medical Center.

She adds, "We want to see if exercise can slow or reverse some of these memory changes in Parkinson's [patients](#). We will also investigate whether a [computer game](#) designed to improve [executive function](#) may make a difference as well. The other question is, what happens when you put the two interventions together – if there is memory improvement, will it be even better than with one of the interventions? Or is it more efficient to do just one or the other? We really do not know."

The researchers, who received funding through a VA Merit Award, plan to enroll about 90 patients who will be divided randomly into three groups: exercisers walking on a treadmill, memory game players and those doing both exercise and memory games. Participants in each group will receive a memory assessment at the beginning of the study. They will come in three times a week for their training for three months and will be then be tested again. Three months after that, the researchers will test the participants again to see if there may be longer term benefits to the training.

With both the treadmill walking and the memory game, the exercise or video game will become more challenging as the participant improves. The [memory training](#) works like a video game with players advancing to a higher level of difficulty. For the exercisers, trainers may increase the speed or slope of the treadmill to make it more aerobically challenging.

"This new study builds on our experience from a previous study of exercise for gait and mobility in Parkinson's disease. Since both motor function and cognitive function are important for mobility and performance of daily activities, this new study will investigate the individual and combined effects of treadmill training and cognitive training," explains Lisa Shulman, M.D., co-investigator and professor of neurology at the University of Maryland School of Medicine.

"Parkinson's patients are eager to know if there is anything they can do to give them greater control over their condition. Mobility and memory are the two key components to preserve independence. If these treatment strategies are found to be effective, we will learn important new approaches to delaying disability," says Dr. Shulman who is co-director of the Maryland Parkinson's Disease and Movement Disorders Center.

The treadmill training will take place at the Baltimore VA Medical Center in the Maryland Exercise and Robotics Center of Excellence, a

gym facility with specialized equipment for people with physical limitations or balance issues. For safety, participants will wear a safety harness while walking on the treadmill. Experienced exercise physiologists will supervise each training session.

The computerized memory training game will take place both at the VA and University of Maryland School of Medicine.

"This study shows the commitment of our University of Maryland faculty to exploring new approaches, such as exercise and memory training, to help patients with illnesses such as Parkinson's disease around the world," says E. Albert Reece, M.D., Ph.D., M.B.A, vice president for medical affairs, University of Maryland, and dean, University of Maryland School of Medicine.

The Maryland researchers expanded the exercise studies to Parkinson's patients after first finding success with treadmill training for stroke patients. This research, also conducted at the University of Maryland School of Medicine and the VA Maryland Health Care System, found that regular exercise on a treadmill can improve stroke patients' walking ability even years after they've had a stroke.

Co-investigator Richard Macko, M.D., says, "With stroke patients, we have seen that the consistent, repetitive motion of walking may help the brain to develop new connections to compensate for the damaged ones. This new Parkinson's study takes the concept of exercise training for neurology patients in a new direction. We will be interested to see if this consistent training will produce benefits to memory." Dr. Macko is director of the Maryland Exercise and Robotics Center of Excellence at the VA Maryland Health Care System and professor of [neurology](#) at the University of Maryland School of Medicine.

Provided by University of Maryland Medical Center

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