

Exercise improves walking in peripheral arterial disease patients

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Charles Meadows measured his life in footsteps. How far to walk to reach the milk in the grocery store? Could he make it to the dairy case before cramps knifed through his left leg, immobilizing him and leaving him breathless in the aisle?

Peripheral arterial disease had shrunk his existence. It turned a basic task like grocery shopping into a tactical nightmare and robbed him of simple pleasures like going to a Cubs game or his family's summer picnics. The blocked arteries in his legs prevented oxygen from reaching the muscle, triggering sharp pain after just a few steps.

But then Meadows participated in a clinical trial from Northwestern University's Feinberg School of Medicine, testing whether supervised exercise could improve symptoms for all people with peripheral arterial disease, known as PAD. (Some 8 million people in the U.S. have PAD.)

The answer: yes. The trial showed six months of supervised treadmill walking and, to a lesser degree, leg strength training improved peoples' ability to walk and boosted their quality of life. That was certainly true for Meadows, who can now stride -- mostly pain free -- along the lake with his two grandchildren for 30 minutes at a stretch.

"I just walk, walk, walk," said Meadows, a 64-year old retired telephone company manager and Chicago resident. "This has given me back my vigor."

The study, which will be published Jan. 14 in the *Journal of the American Medical Association*, is the first to show exercise improves walking endurance for people with PAD who have the classic symptoms of calf pain as well as for those without the classic symptoms.

Past studies have only looked at the benefits of treadmill walking for people with typical leg pain;

however, a large number of people with PAD do not experience this symptom. Both groups suffer impaired walking that gets worse over time. Some will end up in wheelchairs. People with the disease also are more likely to have a heart attack or stroke and have up to double the risk of mortality.

"This is an important new finding for patients with PAD," said Mary M. McDermott, M.D., professor of medicine at the Feinberg School and principal investigator of the study. "People said it was much easier for them to walk. The study shows it's important for physicians to recommend supervised treadmill exercise to all their PAD patients, whether or not they have typical symptoms." McDermott said leg strength training also has benefits for patients with PAD and should be considered as an additional secondary therapy.

PAD is diagnosed when blood pressure in the ankle is lower than blood pressure in the arm, called the ankle brachial index. This indicates a blockage in the leg's arteries.

The randomized clinical trial included 156 patients with PAD, an average age of 73, who were randomly assigned to supervised treadmill exercise, leg resistance training or a control group for six months. Subjects worked up to doing 40 minutes of treadmill walking three times a week or, for the leg strengthening group, three sets of eight repetitions of a leg press, leg curl and knee extension three times a week.

In a test of their performance after six months, patients who trained on the treadmill were able to walk an average of 69 feet further during a six-minute walk than at the start of the study. Participants in the control group decreased their distance by 49 feet. The health of the arm brachial artery improved in the treadmill group, indicating an improvement in their global cardiovascular health, McDermott said.

McDermott said the improved walking performance may have been the result of new arteries developing in patient's legs as a result of the exercise or the heart pumping more oxygen to the legs because they are in better physical condition. However, the study was not designed to determine whether either of these mechanisms explained the improvement in the exercise groups.

Subjects who did the strength training improved the amount of time they were able to walk on a treadmill and reported a better quality of life, including an easier time climbing stairs. They did not show a significant increase in distance during the six-minute walk test.

"The ideal thing is to work with a trainer, but if that's not available, then it's better to do something than nothing at all," McDermott said.

Source: Northwestern University

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