

# Hip strengthening might ease pain of clogged leg arteries

7 May 2015

Detailed gait analysis reveals that people with clogged leg arteries rely more on muscles in the back of the calf when they walk to compensate for weakness in certain hip muscles, according to a new study presented at the American Heart Association's Arteriosclerosis, Thrombosis and Vascular Biology/Peripheral Vascular Disease Scientific Sessions 2015.

This suggests that exercise training to strengthen hip flexor muscles may increase how far patients can walk without calf pain.

Peripheral artery disease (PAD) is a narrowing of the arteries to the legs and other parts of the body, which restricts [blood flow](#). It can cause pain, changes in skin color, sores or ulcers and difficulty walking. Total loss of circulation to the legs and feet can cause gangrene and loss of a limb.

"PAD patients should ask for an expert, such as a physical therapist, to evaluate their gait and the strength of their hip flexors and other muscles. Based on the evaluation, a combination of muscle training and walking exercise may increase how far they can walk and reduce their calf pain during walking," said Takaaki Kakihana, P.T., M.Sc., lead author of the study and a doctoral candidate at Tohoku Graduate School of Medicine in Sendai, Japan.

Researchers used a 3-dimensional motion analysis system to compare the walking patterns of seven healthy people with 16 patients (average age 71), who had moderately blocked leg arteries and leg pain in one or both legs when walking.

The investigators found the PAD patients had abnormal gaits and they:

- walked more slowly, even when trying to walk quickly;
- took smaller steps at both walking speeds;
- used their hip flexor muscles less during

the push-off phase of each step (when the heel has risen but the toe is still on the ground);

- used their ankle flexor muscles more during the push-off phase.

"Usually older people have relatively weaker ankle flexors and use their hip flexors more during the push-off phase of [walking](#). People with PAD use their ankle flexors more to compensate for hip [muscle](#) weakness," Kakihana said.

Hip flexors are located at the front of the thigh and lift the leg with a pulling motion during the push-off phase of each step. Ankle flexors, are in the back of the calf and lift the leg with a pushing motion.

"It is unclear why the hip flexors are weak in PAD patients. We predict that it is from disuse and blood flow restriction to the muscles," Kakihana said.

Exercises to strengthen the [hip](#) flexors include: straight-leg lifts while lying on your back (keeping the other leg bent with your foot on the floor); and raising and holding one knee toward your chest while seated.

Provided by American Heart Association

APA citation: Hip strengthening might ease pain of clogged leg arteries (2015, May 7) retrieved 23 October 2021 from <https://medicalxpress.com/news/2015-05-hip-ease-pain-clogged-leg.html>

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