

Heart patients urged to exercise their calf muscles

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People with chronic heart failure have relatively small calf muscles, but calf exercises could help keep them on their feet. Credit: UNE

Scientists have a strange tip for heart disease sufferers: make sure you exercise your ankles.

University of Western Australia sports biomechanics scientist Fausto Panizzolo studied the walking style of people suffering from [chronic heart failure](#) and compared their stride to healthy, age- and fitness-matched volunteers.

His team found people with heart failure chose to walk at the same speed and in the same way as their healthy counterparts, except their ankle muscles work much harder to keep up.

"Because we found some specific differences in muscles with people with heart failure compared with healthy people who just exercise less, we believe some specificity of this disease affects soleus muscles more than other muscles," Dr Panizzolo says.

The soleus is a powerful [muscle](#) found in the back part of the [calf](#), running down from the knee to the heel. It is used for standing and walking.

Previous studies have shown that people with weak hearts easily become exhausted during physical activity, such as walking, but that the heart was not the only muscle affected by the condition.

Dr Panizzolo says his team wanted to take a different approach and isolate the specific muscles, other than the cardiac, that were most affected by the condition, so rehabilitation programs could be tailored and improve a patient's exercise ability.

Smaller calf muscles

Chronic heart failure, where the heart becomes weak and fails to pump blood properly around the body, affects 300,000 people a year and kills more than 2500 in Australia alone.

Sufferers find exercising difficult and can't walk far, often causing other medical problems that are sometimes terminal.

The researchers took biomechanical measurements of six men and four women with chronic heart failure as they walked on a treadmill at

different speeds and then compared the results against 11 [healthy people](#), including eight men and three women, from the local community.

"What we found is people with chronic heart failure have a smaller [calf muscle](#) and then it is also required to produce more work," Dr Panizzolo says.

"We speculate that the fact that their calf is working very close to their maximum work capacity is what limits their exercise ability."

Dr Panizzolo says people with [heart failure](#) rely more on their ankle than their hip when walking, and that they should focus on exercising their calf muscle, targeting the soleus.

More information: Fausto A. Panizzolo, Andrew J. Maiorana, Louise H. Naylor, Lawrence Dembo, David G. Lloyd, Daniel J. Green, Jonas Rubenson, "Gait analysis in chronic heart failure: The calf as a locus of impaired walking capacity," *Journal of Biomechanics*, Volume 47, Issue 15, 28 November 2014, Pages 3719-3725, ISSN 0021-9290, [dx.doi.org/10.1016/j.jbiomech.2014.09.015](https://doi.org/10.1016/j.jbiomech.2014.09.015).

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