



# Exercise: Intermittent claudication and peripheral arterial disease

## Intervention

Walking and other exercises benefit patients with peripheral arterial disease (PAD), including those with intermittent claudication. Exercise programs, which may be home-based, increase walking time and distance.

## Indication

Intermittent claudication is the most common symptom of peripheral arterial disease.

Intermittent claudication – calf pain, and at times proximal leg pain on exercise, which resolves with rest.

## Precautions

People with PAD are at increased risk of cardiovascular disease, including stroke.

Appropriate footwear is required to reduce the risk of foot injury, especially as patients with PAD are predisposed to foot ulcers and infections.

## Availability

Walking is a readily-available activity.

Evidence suggests that motivated patients do better. Motivation may be improved by supervision, psychological interventions and with devices such as step-counters, which are widely available.

Although unsupervised home-based programs are beneficial, supervised programs are more effective. Supervised training is available from some physiotherapists and exercise therapists.

Step counters are widely available and cost from \$10 to more than \$100.

## Description

Exercise programs increase walking time and distance.

Specific details of effective exercise programs vary. The following is an example of a walking program, which follows the principles of interventions in published studies:

- Walk at an intensity that elicits severe claudication (pain level four out of five)
- Rest until pain subsides enough to resume
- Continue the walk–rest cycle of for 30 minutes to start with
- Gradually increase session time by five minutes increments, until 50–60 minutes of intermittent walking can be achieved per session
- Aim to walk three to five days per week.

In supervised sessions, individual claudication thresholds and other cardiovascular parameters are monitored and workload is adjusted accordingly.

## Tips and Challenges

Some patients consider pain to be a sign of ongoing damage. They may need reassurance that ischaemic calf pain does not damage muscles.



## Grading

NHMRC Level I Evidence (systematic review of randomised controlled trials) for 'exercise'. Level II Evidence (randomised controlled trial) for home-based walking programs.

## References

Bendermacher B, Willigendael E, Teijink J, Prins M. Supervised exercise therapy versus non-supervised exercise therapy for intermittent claudication. Cochrane Database of Systematic Reviews 2006, Issue 2. Art. No.: CD005263. DOI:10.1002/14651858.CD005263.pub2.

Gardner A, Parker D, Montgomery P, Scott K, Blevins S. Efficacy of quantified home-based exercise and supervised exercise in patients with intermittent claudication: a randomized controlled trial. *Circulation*. 2011;123(5):491-8. DOI: 10.1161/CIRCULATIONAHA.110.963066.Epub 2011 Jan 24.

McDermott M, Liu K, Guralnik J, Criqui M, Spring B, Tian L, Domanchuk K, Ferrucci L, Lloyd-Jones D, Kibbe M, Tao H, Zhao L, Liao Y, Rejeski W. Home-Based Walking Exercise Intervention in Peripheral Arterial Disease: A Randomized Clinical Trial. *JAMA*. 2013;310(1):57-65.

Watson L, Ellis B, Leng G. Exercise for intermittent claudication. Cochrane Database of Systematic Reviews. 2008;(4):CD000990. DOI: 10.1002/14651858.CD000990.pub2.

## Consumer Resources

[Patient.co.uk](http://Patient.co.uk) has an excellent explanation of peripheral arterial disease, including exercise and other lifestyle factors involved.