# Exercise for peripheral artery disease

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## Clinical question

**What is the evidence for exercise in the management of patients with peripheral artery disease (PAD)?**

## Bottom line

**Exercise therapy improves maximum and pain-free walking distance by up to 200 m over 2 to 78 weeks compared with usual care. No benefit has been demonstrated for amputation or mortality. The most commonly studied exercise is supervised walking 2 to 3 times per week for 30 to 60 minutes, although other supervised activities (eg, resistance training) may be beneficial for those who cannot tolerate walking.**

## Evidence

Results are statistically significant unless otherwise noted. Evidence for exercise versus usual care with or without exercise advice in patients with PAD (mean age of 67, 67% men, mean ankle-brachial index of 0.67, pain-free walking distance of 110 m to 266 m) is as follows.[1]

- Four systematic reviews (9 to 41 RCTs, 391 to 1938 patients) found the following.[1-4]
  - -Pain-free walking distance improvement: 23 m to 174 m over 2 to 78 weeks.
  - -Maximum walking distance improvement: 41 m to 218 m over 2 to 78 weeks.
  - —Improvement was likely clinically relevant.[5,6]
- Two systematic reviews (1 to 8 RCTs, 177 to 937 patients)[1,4] found no difference in mortality,[4] amputation, or adverse events (eg, cardiovascular events) at up to 78 weeks.

Different types of exercise have also been studied.

- A network meta-analysis (42 RCTs, 3515 patients)[7] found that maximum walking distance improved with supervised (187 m) and home-based (89 m) exercise at less than 1 year. Only supervised programs continued to demonstrate benefit (201 m) between 1 and 2 years.
- In a systematic review (10 RCTs, 527 patients), supervised walking was not superior to other supervised exercise (eg, resistance training, Nordic walking, combination exercises, arm ergometry, or cycling) for pain-free or maximum walking distance.[8]
  - -Limitations: small sample sizes, low-quality evidence.
- An RCT (305 patients) found home-based exercise inducing maximal pain superior to that inducing no pain (change in 6-minute walking distance 34.5 m vs -6.4 m).[5]
  - -Limitations: heterogeneous individual response.
  - -A systematic review found no difference in exercise with no-to-mild pain versus moderate-to-maximal pain.[1]

## Context

- Most common recommendations included supervised walking 2 to 3 times per week for 30 to 60 minutes.[4,9]
- Patient understanding of physical activity for PAD should be explored: 63% identified walking as the primary cause of their pain and 90% thought walking would worsen their symptoms.[10]

## Implementation

General advice to walk at home has limited evidence of benefit.[6] If a patient cannot attend a supervised program, a structured home-based program is reasonable. This may include advice to walk at a pace they can maintain for 5 to 10 minutes (until moderate-strong claudication), to rest until the pain subsides, then to begin the cycle again for at least 30 minutes. Some may need to start with shorter durations (eg, 10 minutes) and increase by 5 minutes per week. Most guidelines suggest a minimum 3 months' duration.[6] Tew et al provide a patient infographic example.[11]

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**Competing interests**
None declared



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