

# Therapies for improving walking distance in claudication

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## ABSTRACT

This dissertation originates from the Surgical Research Unit, Regional Hospital Herning, and Department of Vascular surgery, Regional Hospital Viborg.

Peripheral arterial disease (PAD) is prevalent in two thirds of the population over the age of 55 years, especially in smokers. The most common symptom is intermittent claudication (IC): exertional calf pain caused by walking that resolves with rest. PAD increases cardiovascular morbidity and death 2-6 times due to the affection of coronary arteries, and patients' exercise performance is low and detrimental to their quality of life.

The aim was to make a review and a meta-analysis of pharmacological treatments' effect on improvement in walking distances, and to investigate the effect of caffeine on physical capacity in patients with moderate claudication. The design was two double-blinded, randomized, placebo-controlled crossover studies and a 3-month follow-up. In all, 88 participated of whom 41 were revascularized. Participants were tested four times with one week interval between two tests, and

the intervention was intake of caffeine (6 mg/kg) or placebo.

The meta-analysis shows that pharmacological management yet remains to be defined precisely. Of 23 different drugs, statins showed the highest benefit and because of their dual benefits their importance for patients with PAD is re-enforced. The other drugs showed only moderate effect on walking distance.

Both crossover studies show that caffeine has potential benefits to improve physical performance. Caffeine increased walking distance (pain-free and maximal), strength and muscular endurance.

Neither revascularization nor statins cure IC, so exercise is necessary. Caffeine can be a means to improve training capacity and make walking exercise possible. Increased walking distance is associated with quality of life (QoL).

How caffeine and training combines in practice and is implemented has to be explored to improve QoL for the growing number of IC patients.

## ABSTRACT OF DISSERTATION

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