

Physical activity and exercise in patients with intermittent claudication

Akademisk avhandling

Som för avläggande av medicine doktorsexamen vid Sahlgrenska akademien, Göteborgs universitet kommer att offentligen försvaras i hörsal K Isaksson, Medicinargatan 16, torsdagen den 20 oktober 2022, klockan 13.00

av Anna Sandberg

Fakultetsopponent: Professor Erik Rosendahl, Umeå Universitet, Sverige

Avhandlingen baseras på följande delarbeten

- I. Sandberg A, Bäck M, Cider Å, Jivegård L, Sigvant B, Wittboldt S, Nordanstig J. Effectiveness of supervised exercise, home-based exercise or walk advice strategies on walking performance and muscle endurance in patients with intermittent claudication (SUNFIT trial)-a randomized clinical trial. *European Journal of Cardiovascular Nursing. Accepted for publication August 2, 2022*
- II. Sandberg A, Bäck M, Cider Å, Jivegård L, Sigvant B, and Nordanstig J. Impact of walk advice alone or in combination with supervised or home-based structured exercise on patient-reported physical function and generic and disease-specific health-related quality of life in patients with intermittent claudication, a secondary analysis in a randomized clinical trial. *In manuscript*
- III. Sandberg A, Nordanstig J, Cider Å, Jivegård L, Hagströmer M, Bäck M. The impact of walk advice and exercise strategies on daily physical activity in patients with intermittent claudication, a randomized clinical trial. *Submitted*
- IV. Sandberg A, Cider Å, Jivegård L, Nordanstig J, Wittboldt S, Bäck M. Test-retest reliability, agreement, and minimal detectable change in the 6-minute walk test in patients with intermittent claudication. *Journal of Vascular Surgery. 2020;71(1):197-203.*

**SAHLGRENKA AKADEMIN
INSTITUTIONEN FÖR MEDICIN**



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Abstract

The overall aim of this thesis was to evaluate the effectiveness of unsupervised walk advice (WA) alone or in combination with a hospital-based supervised exercise programme (SEP) or a home-based structured exercise programme (HSEP) on walking ability, muscle endurance, health-related quality of life (HRQoL), self-reported physical function and daily physical activity and to study the test-retest reliability and agreement of the six-minute walk test (6MWT) in patients with intermittent claudication (IC).

Methods. Papers I-III aimed to evaluate the effectiveness of an SEP, HSEP and WA on: I) walking ability and muscle endurance, II) generic and disease-specific HRQoL and self-reported physical function and III) daily physical activity assessed with an accelerometer. Paper IV was a reliability and agreement study of the 6MWT.

Main results. A total of 166 patients with IC (mean age: 72.1, SD 7.4) were included in Papers I-III. Paper I confirmed that an HSEP was non-inferior to an SEP, but that none of these interventions was significantly better than WA alone. In Paper II, no significant between-group differences were observed in generic HRQoL, while a few significant between-group differences were observed over time in disease-specific HRQoL in favour of the SEP. Paper III showed no significant between-group differences at one year in any of the outcomes of accelerometer-measured physical activity. Paper IV demonstrated that the 6MWT has excellent test-retest reliability.

Conclusions. An HSEP was shown to be non-inferior to an SEP. No significant differences were observed at one year between an HSEP, SEP and WA, in terms of the 6MWT maximum and pain-free walking distance, muscle endurance or daily physical activity. In the disease-specific HRQoL, a few of the domains and summary score reached a significant between-group differences over time. This study is limited by low exercise adherence to the HSEP and SEP. As such, there is a need for future studies to assess the optimal exercise intervention to improve outcomes in this population. The 6MWT has excellent test-retest reliability in patients with IC and can be recommended for use in clinical patient evaluation and as an important endpoint in clinical trials.

Keywords: accelerometry, Nordic walking, peripheral artery disease, quality of life, reproducibility of result, walk test