Introduction
In intermittent claudication (IC), studies have suggested systemic effects and histomorphological changes in the gastrocnemic muscle, however, little is known about the local metabolism. Microdialysis allows for continuous in vivo collection and measurement of free, unbound, extracellular metabolite concentrations in organs and tissues. The aim of this pilot study was to investigate the possible use of microdialysis to assess the metabolism in the moving gastrocnemic muscle as well as the systemic inflammatory response during walking.

Methods
A total of 9 participants were recruited, six patients with IC and three healthy controls. With one microdialysis catheter in the gastrocnemic muscle, one subcutaneously in the pectoral region, and a peripheral venous catheter, dialysate and venous blood sampling was performed before, during and after walking on a treadmill to maximal tolerable claudication (controls 10 minutes).

Results
At baseline, IC- and control subjects did not differ in metabolic findings (glucose, lactate, pyruvate, glycerol) in the gastrocnemic muscle. Subcutaneous glucose concentration was higher in controls. After physical exertion, gastrocnemic and subcutaneous glycerol, lactate and pyruvate concentrations increased in IC subjects. The muscle catheters did not show any signs of causing harm. Plasma concentrations of TNF-α, IL-6, IL-1β, HGF and VEGF were higher in IC subjects at baseline, and TNF-α, IL-6 and IL-18 increased after walking as did IL-6 and IL-1β in controls.

Conclusion
Microdialysis can be used to study the ongoing metabolic response during walking and claudication. Our results suggest both an acute local and a systemic inflammatory reaction during development of claudication pain.