

How to move? Quadriceps muscle activity, weight-loading and patient experiences during two different pivot transfers in subacute stroke patients.

Sigrid F. Pedersen & Sigrid Tibaek

Department of Occupational Therapy and Physiotherapy, Rigshospitalet – Glostrup, University of Copenhagen, Denmark

Introduction

Early and frequent out-of-bed mobilisation is important parts of the recovery in poststroke patients, but evidence-based data for the optimal pivot transfer technique is missing.

The objective of this study is to investigate whether there are differences in quadriceps muscle activity, weight-loading and patient experiences during two different pivot transfers in subacute stroke patients.

Method

In a randomised comparative laboratory study six stroke patients with median age 56 (54-62) years, one female and five male and within two weeks poststroke participated.

Each participant performed six consecutive pivot transfers (three each over the paretic and the non-paretic lower-extremity).

Surface Electromyography (sEMG), Pedar-X System and Patient Experience Evaluation Form measured the outcomes.

Results

The sEMG measurement of quadriceps (rectus femoris) muscle activity (peak) indicate mean of 165.39 (55.64) mV vs. mean 99.38 (55.64) mV, $p = 0.35$ comparing the paretic with the non-paretic lower-extremity (Fig. 1).

The Pedar-X System measurement of weight-loading indicate mean of 242.25 (89.08) Newton vs. mean 500.23 (71.05) Newton, $p = 0.63$ comparing the paretic with the non-paretic lower-extremity.

The participants felt significantly safer ($p < 0.01$) and preferred ($p < 0.01$) pivot transfers over the non-paretic lower-extremity to those over the paretic lower-extremity.

Conclusion

The results of quadriceps muscle activity and weight-loading indicate no statistically significant differences, while the participants 'experienced feeling significantly safer and preferred transfers over the non-paretic lower-extremity.

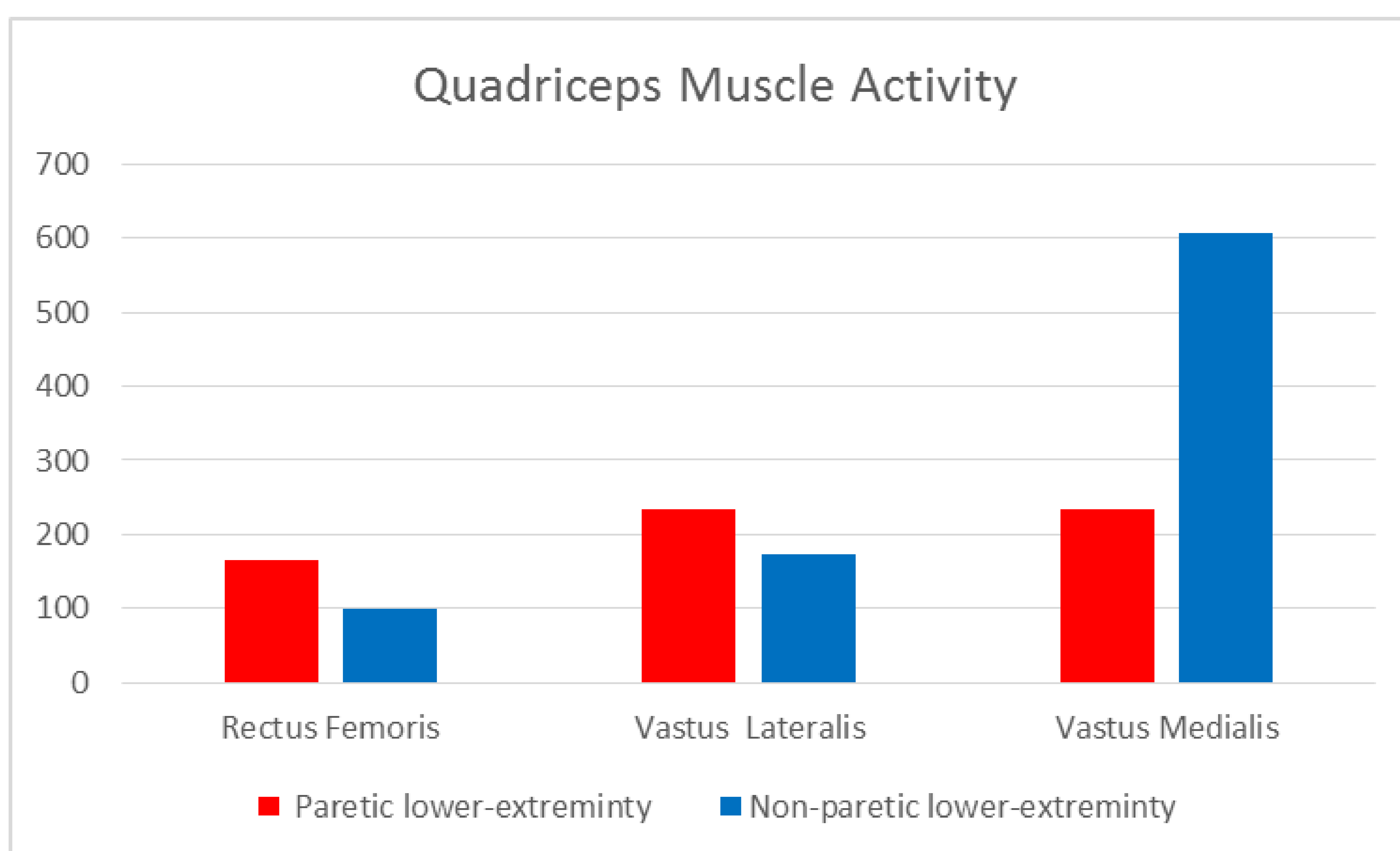


Fig. 1. Quadriceps muscle activity measured by surface EMG during two different pivot transfers in subacute stroke patients.