

**The value of telerehabilitation in encouraging coronary artery disease patients to stay active after the acute rehabilitation phase.**

**Authors:**

I Frederix<sup>1</sup>, D Hansen<sup>2</sup>, K Bonne<sup>2</sup>, T Alders<sup>2</sup>, N Van Driessche<sup>3</sup>, J Berger<sup>2</sup>, P Dendale<sup>4</sup>, <sup>1</sup>Catholic University of Leuven - Leuven - Belgium, <sup>2</sup>Virga Jesse Hospital, Rehabilitation and Health Centre - Hasselt - Belgium, <sup>3</sup>Hasselt University - Hasselt - Belgium, <sup>4</sup>Jessa Hospital - Hasselt - Belgium,

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**Purpose.** The aim of this study was to evaluate whether the addition of a motion sensor with automated feed-back by SMS to the conventional rehabilitation program could result in an increase in daily activity among coronary artery disease patients.

**Methods.** 20 coronary artery disease patients were included in this randomised, controlled trial after admission for PCI or CABG (target population of the study n = 80). All patients were included during phase II of the cardiac rehabilitation program. Patients with a defibrillator, important arrhythmias or severe heart failure (NYHA class III and IV) were excluded from the trial. The patients in the intervention group (n = 14) were asked to wear the motion sensor continuously during the day for 6 weeks. Each week they uploaded their step data on the web and received new step goals for the next week. The feed-back program was designed to gradually increase the patients' activity level. In the control group (n = 6), the patients wore the motion sensor two times for one week for measurement purposes only (week 1 and 6). All patients performed a maximal cardiopulmonary exercise test at week 1 and 6 to determine their peak oxygen uptake (VO<sub>2</sub> peak). The primary hypothesis of the trial was that the addition of a telerehabilitation program to the conventional cardiac rehabilitation program results in a sustained, increased amount of daily activity outside the rehabilitation centre. The secondary hypothesis was that this also would translate into a greater increase in VO<sub>2</sub> peak. The Wilcoxon and Mann-Whitney test were used to test these hypotheses.

**Results.** For the intervention patients, the Wilcoxon test showed a significant increase in daily activity between week 1 and week 6 (P=0.0009) and a significant increase in VO<sub>2</sub> peak (P=0.0098). In the control group, the respective P values were 0.219 and 0.375. The Mann-Whitney test comparing the increase in walking steps from week 1 to week 6 between the intervention and control group did also show a trend toward larger increase in the intervention group ( P=0.054).

**Conclusions.** The addition of an internet-based telerehabilitation program to conventional cardiac rehabilitation resulted in a significant increase in daily activity level and VO<sub>2</sub> peak after 6 weeks, as compared to conventional rehabilitation alone. This observation was promising, because it has proven difficult to encourage cardiac patients to stay active or to increase their daily physical activity level. An internet-based telerehabilitation intervention that uses motion sensors might be a valuable instrument to overcome this difficulty.