

# **Effectiveness of a personalised 3-mo e-Health intervention on daily steps among patients of elective cardiac procedures: a randomised controlled PACO trial**

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## **Background**

-Although cardiac procedures are executed in order to enhance quality of life and daily functionality, majority of operated cardiac patients do not reach the sufficient level of physical activity.

-The purpose: to study an effectiveness of a personalized smartphone- and accelerometer-based eHealth intervention (PACO) to increase physical activity (PA) and to decrease sedentary behaviour (SB) among Finnish patients recovering from cardiac procedures.

## **Methods**

- Patients for elective coronary artery bypass grafting, valvular surgery or coronary angiography / percutaneous coronary intervention (n=210) were randomly assigned either to a 12-wks interactive PA guidance (interactive accelerometer-application(ExSed)-cloud) or standard care.

- Participants received personalized, increasing goals for daily steps, which were examined with an interactive accelerometer (app for participant and cloud for physiotherapist at Heart Center).

- The physiotherapist encouraged patients to increase daily steps using short phone calls twice per month. Data of effectiveness was collected before operations, after 3-mo intervention and after 9-mo f-up. This trial is registered with ClinicalTrials.gov (NCT03470246) and is ongoing.

- PA and SB measurements are analysed by mean amplitude deviation (MAD), angle for posture estimation (APE) algorithms and time in bed (TIB) classification developed by the UKK Institute.

Figure 1.

## **Results**

We pooled all patients groups that participated in the PACO study. Mean MVPA and daily steps increased in patients of intervention group by 46% and 21% after 3-mo intervention and by 29% and 17% at 12-mo f-up compared to control group (5% and 10% decrease at 3-mo and 10% and 11% decrease at 12-mo, respectively) (p=0.028 and p=0.015 for MVPA and steps).

Figure 2.

## **Conclusions**

The used personalized, interactive accelerometer-application-cloud based eHealth intervention with increasing goals for daily steps in patients after cardiac procedure was found effective and the positive effect persisted during follow-up when compared to patients of usual care.

Figure 1.

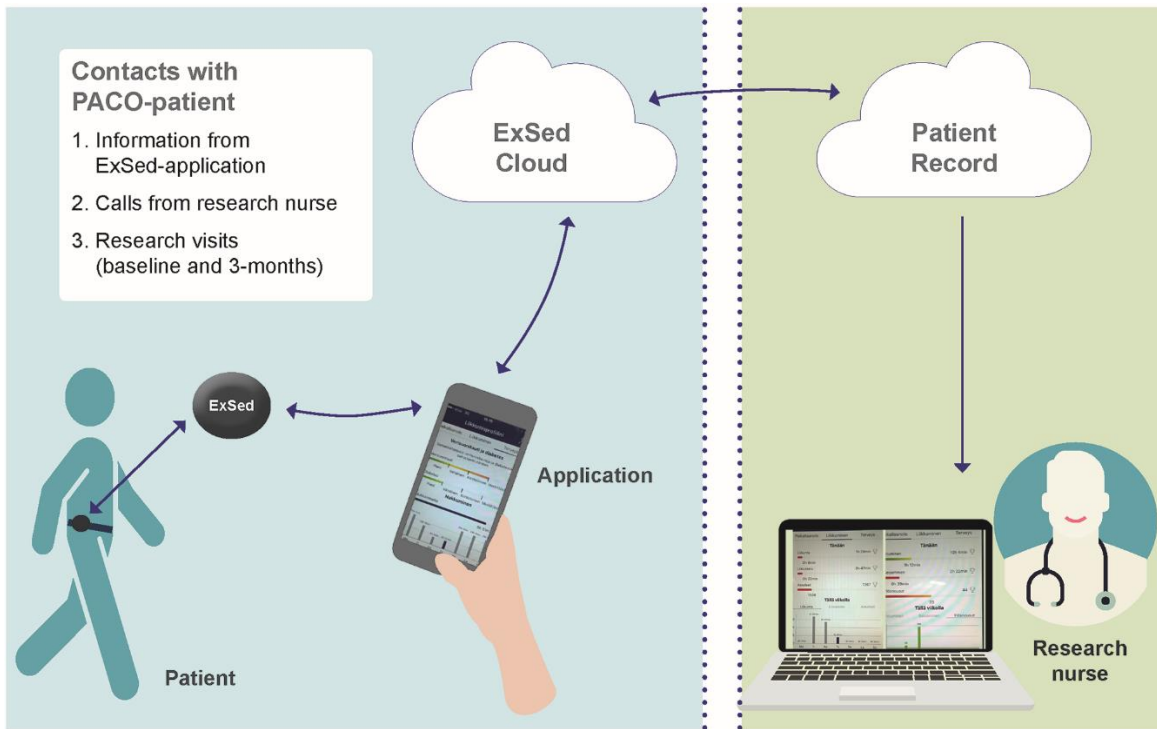


Figure 2.

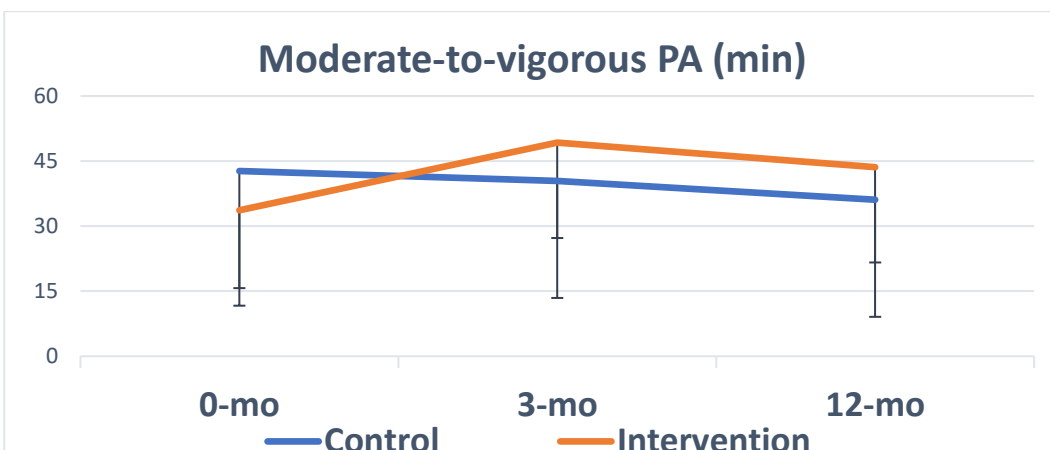


Figure 3.

# Data flow

