

App helps improve pain control and reduce opiate use after surgery

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Patients who underwent total knee replacement and used a smartphone app (PainCoach) at home after surgery consistently reduced opiate painkiller use and improved pain control, according to new research being presented at this year's Euroanaesthesia Congress (the annual meeting of the European Society of Anaesthesiology) in Vienna, Austria (1-3 June).

The more the study participants used the app, the more likely they were to lower pain scores and decrease their use of opioids.

"These are important findings given the current demands on the healthcare system and the growing misuse of prescription painkillers worldwide", says author Dr. Amar Sheombar from Kliniek ViaSana in the Netherlands. "Few clinically-tested mobile apps exist with clear measurable goals to guide patients in pain control and opiate use at home after surgery."

To investigate the effect of the PainCoach app on pain and opiate use, Dutch researchers randomly assigned 71 patients (aged 56-70 years) undergoing total knee replacement to the app and usual care (38 patients) or usual care alone (33) in the first 2 weeks at home after surgery.

The mobile app allows patients to input their pain level (no pain, bearable pain, unbearable pain, or untenable pain)—based on this information and the amount of days after surgery, the app offers advice on drug pain relief use and exercises or rest.

Questionnaires were used to establish opiate use (oxycodone) and pain levels at rest, during activity, and at night, as well as other pain drug use, experiences with exercises, pain acceptance, function, and quality of life. Participants completed questionnaires preoperatively, daily during the first two weeks, and after 1 month.

Amount of app use was also recorded, with 'active

use' defined as at least 12 uses of the app over 2 weeks. During the study, average Visual Analogue Scale (VAS) pain score was 23 (the scale is 0 to 100 where 100 represents the highest pain) and average opiate use across the group was less than half (0.4) of one 5mg oxycodone tablet per day.

Compared to the control group, users of the PainCoach app used 23% less opiates and 15% more paracetamol in the first 2 weeks following surgery.

Regular (active) use of the app led to further reduction in opiate use and improved [pain control](#) during activity and at night. Regular app users (19 patients) reported four times faster reduction in pain during activity, six times faster reduction in pain at night, and 44% less opiate and 76% less gabapentin use (taken to relieve nerve pain) compared to controls. Opiate use was substituted by 21% more paracetamol use in regular app users.

"Knowing that 80% of interactive advice is remembered may explain why regular use of the PainCoach app contributes to lower pain scores and reduced opiate use", says Dr. Sheombar. "Digital innovations like smartphone health-care apps must empower patients and deliver patient-centric care. Three-quarters of the study patients found our app valuable and wanted to use it for real-time feedback and support. In the current study population opiate use was already low—the app might have a much stronger effect in patient populations where pre-operative [opiate](#) use is much higher."

Longer term use of opioids can lead to physical dependence and difficulty stopping use. Misuse of prescription painkillers is a growing public health problem worldwide. In the USA, an estimated 18 million Americans misused prescription painkillers at least once in the past year, and overdose deaths involving prescription opioid pain relievers were five

times higher in 2016 than in 1999.

Provided by European Society of Anaesthesiology

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