

# Designing the optimal digital health intervention for patients' use before and after elective orthopaedic surgery: a qualitative study.



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**Introduction:** Healthier lifestyle changes made before and after orthopaedic surgery can positively impact surgical outcomes and overall success.(1) Digital technologies, like smartphone apps and smartwatches, present an opportunity to provide surgical patients with remote support. Little is known about the optimal design or delivery of digital technologies for orthopaedic surgical patients.(2) This qualitative study was designed to collect perspectives of orthopaedic surgical patients, to develop tailored and effective digital strategies for this cohort, with the focus of improving their surgical outcomes through holistic lifestyle change.

**Methods:** The COREQ checklist was followed. Pre- and post-operative patients undergoing orthopaedic surgery at one hospital in the North of England were invited to take part. Purposive sampling was used to recruit a representative sample of patients. Semi-structured interviews took place remotely, via telephone or Zoom® calls, between May-June 2020; they were audio-recorded and transcribed verbatim. Reflexive thematic analysis enabled the development of themes from the data. NVivo12 software assisted data organisation.

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**Research question:** How should digital technologies be designed to support patients undergoing orthopaedic surgery and *when* should they be implemented?

## Person-centred findings

- 1. Incorporate interactive, user-centred features:**  
*"Things that record what you've done so you can see and say "ah, I've achieved that, I've done that" and I have the incentive to go further" – Patient 1.*
- 2. Direct a descriptive and structured recovery:**  
*"All I was after was some indication of what to do to safely push on... Having some indication of "this is what you need to do this week"... I wanted something to show me" – Patient 4.*
- 3. Enable customisable, patient-controlled settings:**  
*"It's going to need a personal approach – if you were able to toggle certain settings to make it individualized to each person" – Patient 3.*
- 4. Deliver surgical advice in a timely manner:**  
*"I was ready for the off straight away... You don't want to be waiting 'til you're post (-operative) to hear those things" – Patient 5.*



**Results:** Eighteen patients were interviewed (average age 52-years, SD: 16.7). Eleven interviews were conducted by telephone and 7 were conducted using Zoom®. Reflexive thematic analysis enabled the development of 4 themes relating to the *design, functionality* and *implementation* of optimal digital technologies to best support patients before and after orthopaedic surgery (see person-centred findings, left).



## **Conclusions:**

This study provides much-needed evidence relating to the optimal *design* and *timing* of digital interventions for elective orthopaedic surgical patients. Findings from this study show a desire for personalised perioperative care, supporting patients to make healthier lifestyle changes to optimise surgical success. Our focus was solely orthopaedic surgery and thus findings may not be generalisable to other elective surgical procedures. These findings have the potential to shape and influence future work on the co-design and optimisation of person-centred digital health technologies in modern healthcare settings.

## **References:**

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