



# The use of assistive technology in shoulder exercise rehabilitation – a usability study

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## Shoulder rehab, assistive technology, patient focused, patient compliance

### Background

Shoulder pain is the 3rd largest MSK complaint in primary care, the burden of disease is growing due to the ageing population. There is increasing evidence exercise therapy is effective for this cohort but research on effective delivery of these interventions is lacking.

**Aim:** To look at the acceptability of assistive technology in delivering shoulder rehabilitation.

### Methods

Patients attending the tertiary referral centre for rehabilitation were invited to participate, as well as their clinicians. Following completion of rehabilitation patients and clinicians were interviewed by the researcher to explore the acceptability of the devices. Interviews were conducted and audio recorded by the study coordinator. All interviews were transcribed verbatim and inputted into QSR NVIVO v11 for the purposes of analysis. A directed content framework analysis was conducted using Normalisation Process Theory (NPT) as the conceptual tool to frame the enquiry to explore the underlying reasons behind the acceptability of the shoulder devices.

### Conclusion

The MUJO system was acceptable to patients and clinicians as a device to complement shoulder rehabilitation but not as a replacement. For it to be taken up as part of routine practice devices need to be accessible in the community. Further work is required to establish if such devices improve patient adherence compared to conventional treatments.

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### Results

- Seven physiotherapists and ten patients were interviewed in the study.
- The MuJo® device (see Figure's 1 and 2) was seen as having the potential to rehabilitate the rotator cuff however it posed limitations towards more functional based exercises.
- Patients and clinicians found the visual feedback from the Patient App (figure 3) enhanced the rehabilitation experience.
- The MuJo® machine was acceptable to all for rehabilitation providing the devices were available for use by the patients in the community.
- Where patients could access this reduced the demand for physiotherapy as patients completed their rehabilitation independently, however patients and clinicians stressed this was not a replacement for normal care.



Internal Device Figure 1

External Device Figure 2

Patient App Figure 3

