The use of assistive technology in shoulder exercise rehabilitation

a usability study

Authors:
1. Anthony Gilbert
2. Iva Hauptmannova
3. Anju Jaggi

Royal National Orthopaedic Hospital, Stanmore, UK

Contents:
- Background
- Methods
- Results
- Conclusions

Study funded by

Innovate UK
Technology Strategy Board

No Competing Interests to declare
Background & Methods

MuJo Innovation Journey:
1. Business Case (MuJo Mechanics)
2. Usability (RNOH)
3. Quality (RNOH)
4. Outcomes (Circle Bedford)

- Shoulder pain third most common reason for MSK consultations in general practice
  - Est Rx cost £100 million [1]
- Weakness of rotator cuff muscles
  - Rehabilitation of RC as effective as shoulder surgery [2]
- Growing demand for services to meet the demands of this complex patient group
  - Role of technology??
- Patients adherence and engagement key to management of RC problems
  - Role of technology??

- Determinants of successful telemedicine implementations: a literature study [3]
  1) Technology
  2) Acceptance

- Patients attending rehab invited to participate
- Qualitative interviews
- Questionnaire
Results

• 7 Physiotherapists
• 10 patients

<table>
<thead>
<tr>
<th></th>
<th>Patient</th>
<th>Clinician</th>
</tr>
</thead>
<tbody>
<tr>
<td>App</td>
<td>4.0</td>
<td>3.9</td>
</tr>
<tr>
<td>Machine</td>
<td>4.7</td>
<td>3.9</td>
</tr>
</tbody>
</table>

‘The MuJo® system was acceptable to patients and clinicians. For the MuJo® to be taken up as a routine part of clinical practice patients need to be able to access the devices in the community. The MuJo® device was seen as a useful supplement to clinical practice and where it was used this reduced treatment time with the clinician over the treatment pathway.’
‘because the patients are so positive about it I’ve tended to find a way because one of the biggest challenges we face as therapists is patient adherence and compliance.’ [C2]

‘If I was far away from the MUJO machine, I don’t know what I would do, to be honest. I would probably travel to use it’ [P3]

‘I do think it reduces the amount of clinical episodes you need directly with the physio staff, so it basically releases your clinical time. So you can see more patients, because you are not reliable on so many sessions...’ [P7]

‘the only thing is, obviously with progressions, what we try and do is reduce the support. So from a strength component, MUJO is good. But if we want to reduce the stability, we can’t really do that’ [C4]
Conclusion

• Clinicians identified situations when the use of MuJo was acceptable
  • Rotator cuff rehabilitation
  • When can access in the community
  • When kinetic chain rehab not required

• The use of the app enhanced patient experience

• When used, the MuJo reduced 1:1 treatment time

• To get the most out of MuJo – access to more devices essential
  – Grant funding... impact on NHS care?
  – Cost / clinical effectiveness?
  – Commissioning?

References:

MuJo Innovation Journey:
1. Business Case (MuJo Mechanics)
2. Usability (RNOH)
3. Quality (RNOH)
4. Outcomes (Circle Bedford)

Thank you!