

# A multi-centre randomised control trial comparing gamification with remote monitoring against standard rehabilitation for patients after arthroscopic shoulder surgery



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# Background and Aim

- Over **50%** of patients are non-compliant with their home exercise program (King et al., 2013).
- MIRA Rehab has been validated to accurately measure range of motion in the shoulder (Wilson et al., 2017)
- Goal based rehabilitation can be used in a computer-based exergame rehabilitation programme (Ani et al., BESS 2017)

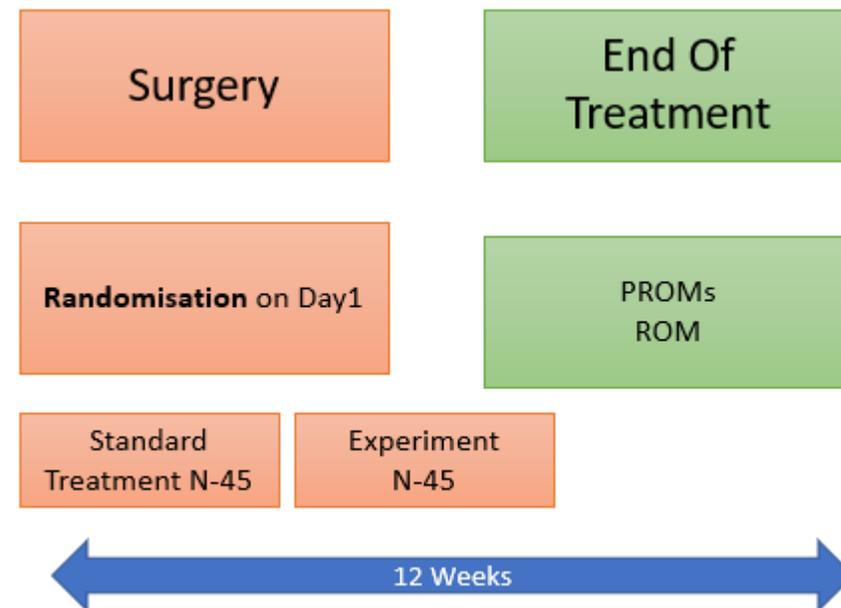
## Aim:

- The aim of this study was to determine the efficacy of 'Exergames' compared with standard physiotherapy in patients treated with arthroscopic shoulder surgery



# Methods

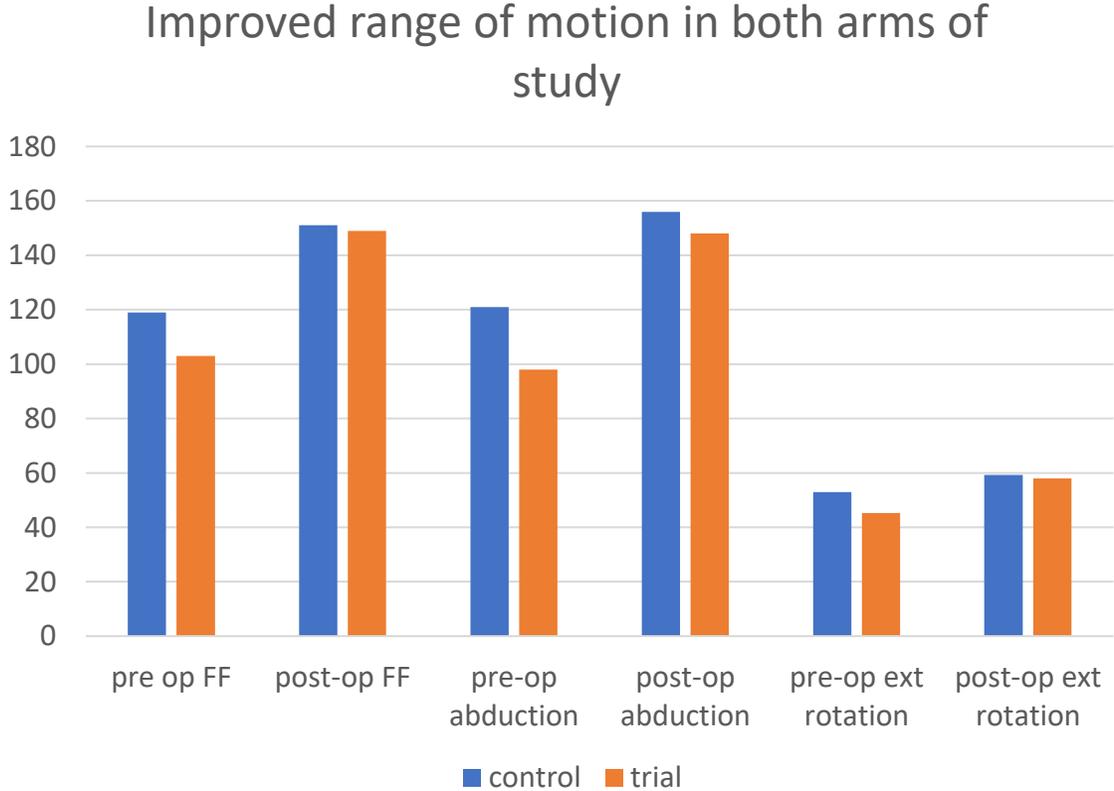
- Patients recruited from TGH/RBH/SRFT
- Randomised into two arms:
  1. Standard post-operative physiotherapy.
  2. Post-operative regime of exergames using the principles of gamification set by physios with physiotherapy support.
- Oxford Shoulder Score (OSS) and the Disabilities of the Arm, Shoulder and Hand (DASH) Score were collected pre-operatively and at 12 weeks.
- Range of movement was objectively measured by 'Medical Interactive Recovery Assistant' (MIRA) paired with a Microsoft Kinect



# Results

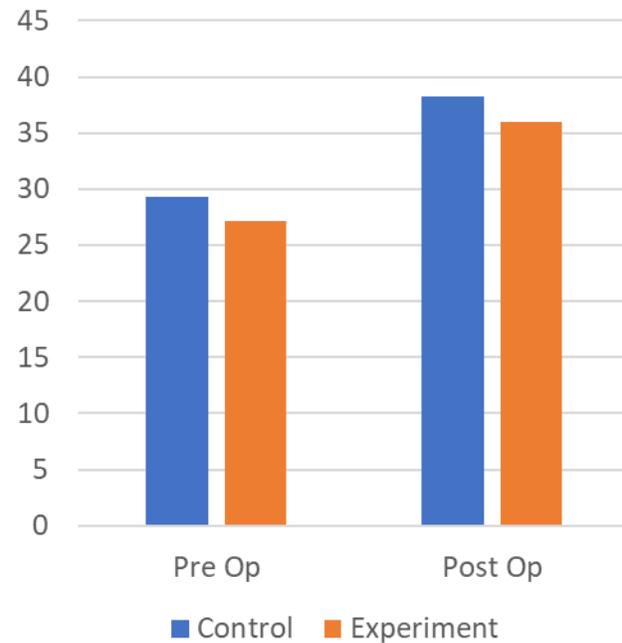
- 71 patients were initially recruited to the study.
- 7 patients were excluded due to their intra-operative findings.

	Control group	Trial Group
Number	33	31
Mean age	54.3	52.9
<b>Surgery Performed:</b>		
Subacromial Decompression	19	15
Debridement/ decompression calcific tendonitis	4	4
Rotator Cuff Repair	10	12



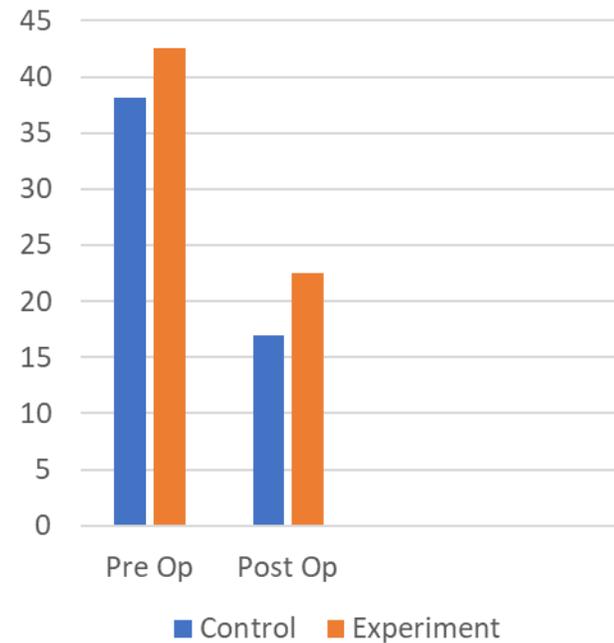
# Results

### Oxford Shoulder score



No significant difference between the groups at 12 weeks ( $p=.246$ )

### DASH



No significant difference between the two groups at 12 weeks ( $p=.328$ )



# Discussion/Conclusions

- Significant improvements in ROM/PROMs in both treatment arms
- Study complicated by the results of the CSAW trial- expanded to include more pathology
- Exergames appear to be effective in the rehabilitation of patients post shoulder surgery.
- This has the potential to relieve some of the heavy burden placed on physiotherapy departments for 'routine' post-operative care.
- Compliance may remain an issue- the treatment may be not suitable for all
- Remote monitoring of progress is possible allowing early review of struggling patients

