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Novel Approaches to Improving Outcomes following Elective Orthopeadic Surgery

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Aims for the talk

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- Examine novel outcome measures following joint replacement.
- Discuss novel interventions to improve outcomes following joint replacement.

What are the patients saying

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Whilst many people post-THA or TKA wish to **return to pre-pathological physical activity status**, there **limited interest** in actually undertaking greater levels of physical activity post-arthroplasty either for pleasure or health gains. Improvement in education and awareness of this may be key drivers to improve habitualisation of physical activity post-arthroplasty.

(Smith et al. 2015)

What are the patients saying

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Participants aim to undertake activities “they had been capable of doing” before the diseased progressed “such as housework, gardening and walking the dog.”

Patients therefore see surgery as a way to “enable them to return to their active lives, thereby reinforcing the perceived necessity of surgical intervention.

(Smith et al. 2015)

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IRISH SUN

Named after newspaper first published in 1880

Friday 6th October, 2017

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Physical activity does not improve after hip surgery: Study

14.9 °C

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Article

CLINICAL REHABILITATION

Is there a difference in physical activity levels in patients before and up to one year after unilateral total hip replacement? A systematic review and meta-analysis

Clinical Rehabilitation
2017, Vol. 31(5) 639–650

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SAGE

What does the data say?

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- 17 studies, 1030 participants.
- No significant difference in physical activity pre-, post-operatively.
- The quality of the evidence was rated as poor to moderate.

Pre-, post-operative physical activity

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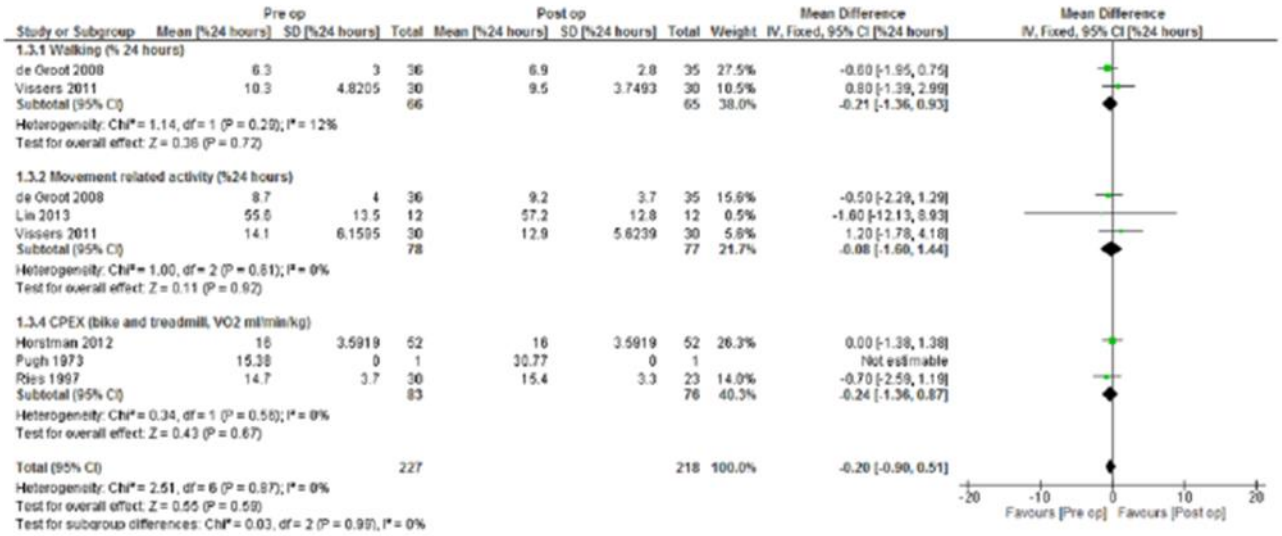

Study or Subgroup	Pre op Mean [%24 hours]	Pre op SD [%24 hours]	Pre op Total	Post op Mean [%24 hours]	Post op SD [%24 hours]	Post op Total	Weight	Mean Difference IV, Fixed, 95% CI [%24 hours]
1.3.1 Walking (% 24 hours)								
de Groot 2008	6.3	3	36	6.9	2.8	35	27.5%	-0.60 [-1.95, 0.75]
Vissers 2011	10.3	4.8205	30	9.5	3.7493	30	10.5%	0.80 [-1.39, 2.99]
Subtotal (95% CI)			66			65	38.0%	-0.21 [-1.36, 0.93]
Heterogeneity: Chi² = 1.14, df = 1 (P = 0.29); I² = 12%								
Test for overall effect: Z = 0.36 (P = 0.72)								
1.3.2 Movement related activity (%24 hours)								
de Groot 2008	8.7	4	36	9.2	3.7	35	15.6%	-0.50 [-2.29, 1.29]
Lin 2013	55.6	13.5	12	57.2	12.8	12	0.5%	-1.60 [-12.13, 8.93]
Vissers 2011	14.1	6.1595	30	12.9	5.6239	30	5.6%	1.20 [-1.78, 4.18]
Subtotal (95% CI)			78			77	21.7%	-0.08 [-1.60, 1.44]
Heterogeneity: Chi² = 1.00, df = 2 (P = 0.61); I² = 0%								
Test for overall effect: Z = 0.11 (P = 0.92)								
1.3.4 CPEX (bike and treadmill, VO2 ml/min/kg)								
Horstman 2012	16	3.5919	52	16	3.5919	52	26.3%	0.00 [-1.38, 1.38]
Pugh 1973	15.38	0	1	30.77	0	1		Not estimable
Ries 1997	14.7	3.7	30	15.4	3.3	23	14.0%	-0.70 [-2.59, 1.19]
Subtotal (95% CI)			83			76	40.3%	-0.24 [-1.36, 0.87]
Heterogeneity: Chi² = 0.34, df = 1 (P = 0.56); I² = 0%								
Test for overall effect: Z = 0.43 (P = 0.67)								
Total (95% CI)			227			218	100.0%	-0.20 [-0.90, 0.51]
Heterogeneity: Chi² = 2.51, df = 6 (P = 0.87); I² = 0%								
Test for overall effect: Z = 0.55 (P = 0.59)								
Test for subgroup differences: Chi² = 0.03, df = 2 (P = 0.99), I² = 0%								

Mean Difference
IV, Fixed, 95% CI [%24 hours]

-20 -10 0 10 20
Favours [Pre op] Favours [Post op]

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An interesting aside.

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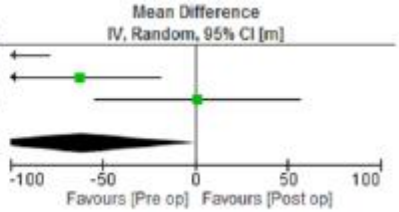
Study or Subgroup	Pre op Mean [m]	Pre op SD [m]	Pre op Total	Post op Mean [m]	Post op SD [m]	Post op Total	Weight	Mean Difference IV, Random, 95% CI [m]
Heiberg 2013	401	113.2718	88	512	88.0731	64	36.2%	-111.00 [-143.03, -78.97]
Holstege 2011	317.9	112.3	55	380.4	99	37	33.5%	-62.50 [-106.07, -18.93]
Oosting 2012	340	78	15	339	69	12	30.3%	1.00 [-54.52, 56.52]
Total (95% CI)			158			113	100.0%	-60.85 [-122.41, 0.72]

Heterogeneity: Tau² = 2455.22; Chi² = 12.34, df = 2 (P = 0.002); I² = 84%
Test for overall effect: Z = 1.94 (P = 0.05)



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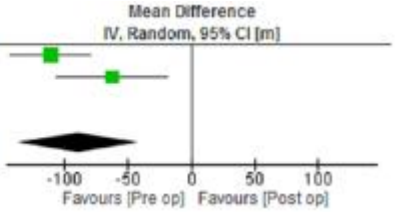
Oosting 2012	340	78	15	339	69	12	0.0%	1.00 [-54.52, 56.52]
Total (95% CI)			143			101	100.0%	-89.09 [-136.40, -41.79]

Heterogeneity: Tau² = 795.53; Chi² = 3.09, df = 1 (P = 0.08); I² = 68%
Test for overall effect: Z = 3.69 (P = 0.0002)



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Osteoarthritis and Cartilage

OARSI OSTEOARTHRITIS RESEARCH SOCIETY INTERNATIONAL

Changes in social isolation and loneliness following total hip and knee arthroplasty: longitudinal analysis of the English Longitudinal Study of Ageing (ELSA) cohort

CrossMark

- 393 participants included in the analysis.
- Significant difference in social isolation pre compared to the recovery phase (p=0.001).
- No significant difference in loneliness.

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Removing hip precautions as a method of improving post-operative recovery.

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Smith and Sackley *BMC Musculoskeletal Disorders* (2016) 17:228
DOI 10.1186/s12891-016-1092-x

BMC Musculoskeletal Disorders

RESEARCH ARTICLE Open Access

UK survey of occupational therapist's and physiotherapist's experiences and attitudes towards hip replacement precautions and equipment

Are we making it harder for patients

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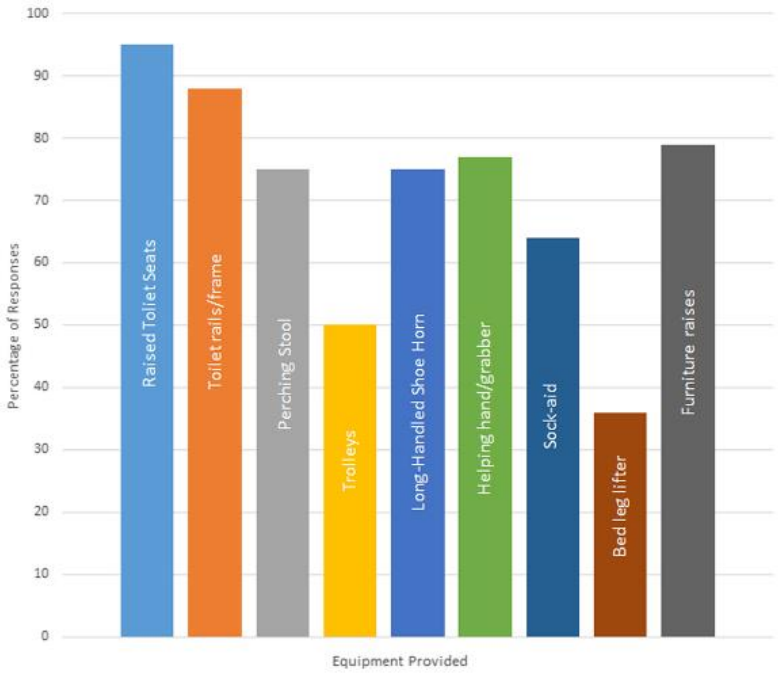
- 170 health care professionals answered the questionnaire.
- Are hip precautions inhibiting recovery?



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Hip precautions the healthcare professionals view

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	Yes
Would you like to change your current practice.	48%
Would you like to remove hip precautions for all patients?	11%
Should there be more research on the provisions of hip precautions following primary THR?	88%

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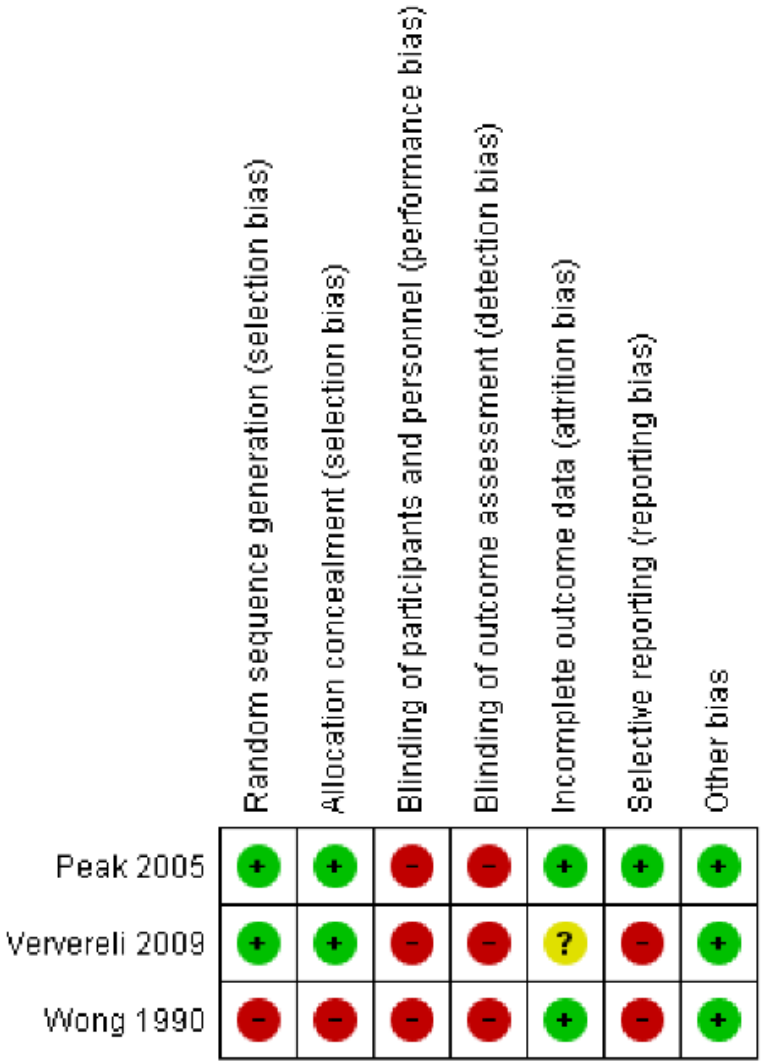
Cochrane Library

Cochrane Database of Systematic Reviews

Assistive devices, hip precautions, environmental modifications and training to prevent dislocation and improve function after hip arthroplasty (Review)

Hip precaution Cochrane review.

- Three studies included, 492 participants.
- The evidence presented with a high risk of performance, detection and reporting bias.
- The results of the systematic review were inconclusive.



The use of Pedometer to improve rehabilitation, a pilot trial

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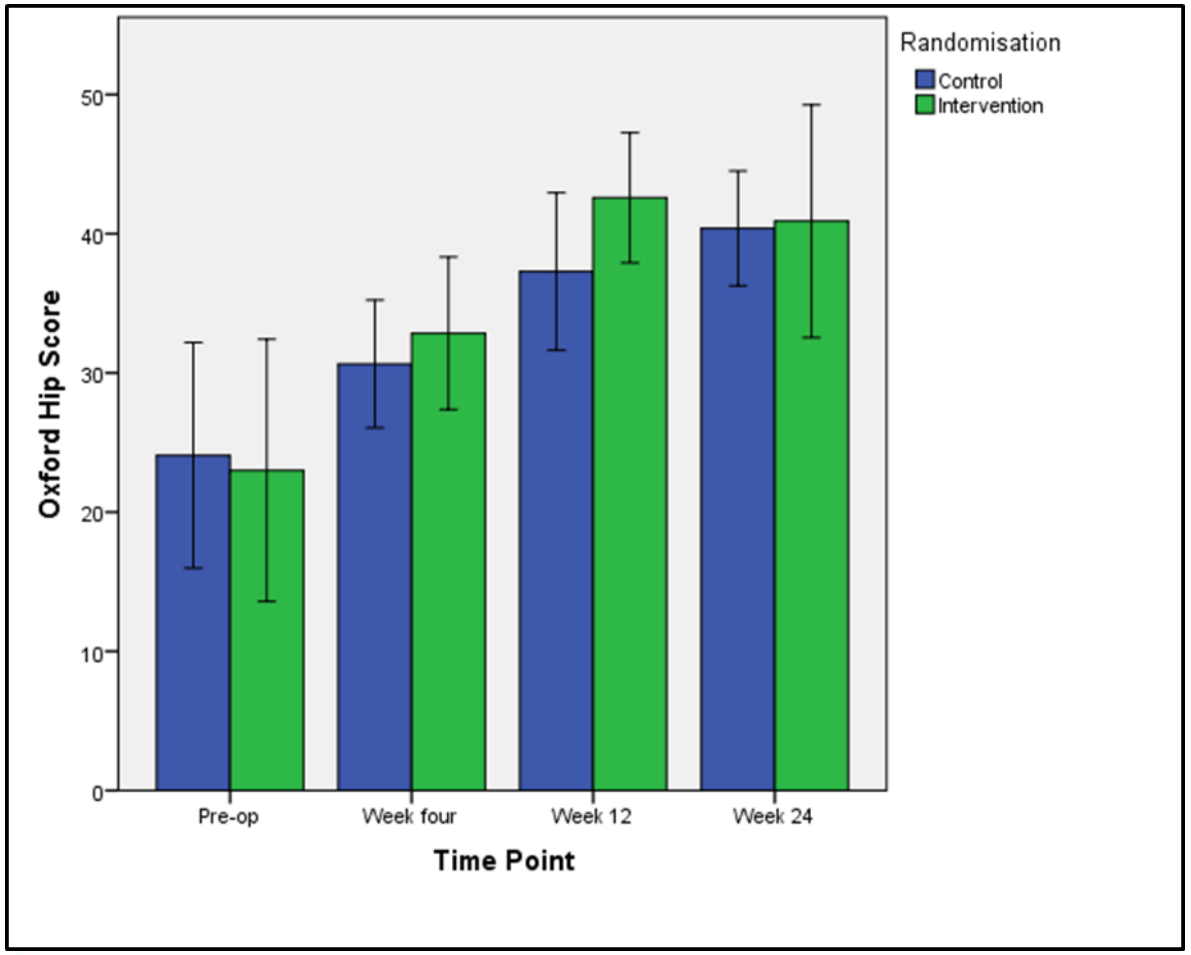

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Physical Activity Score for Elderly

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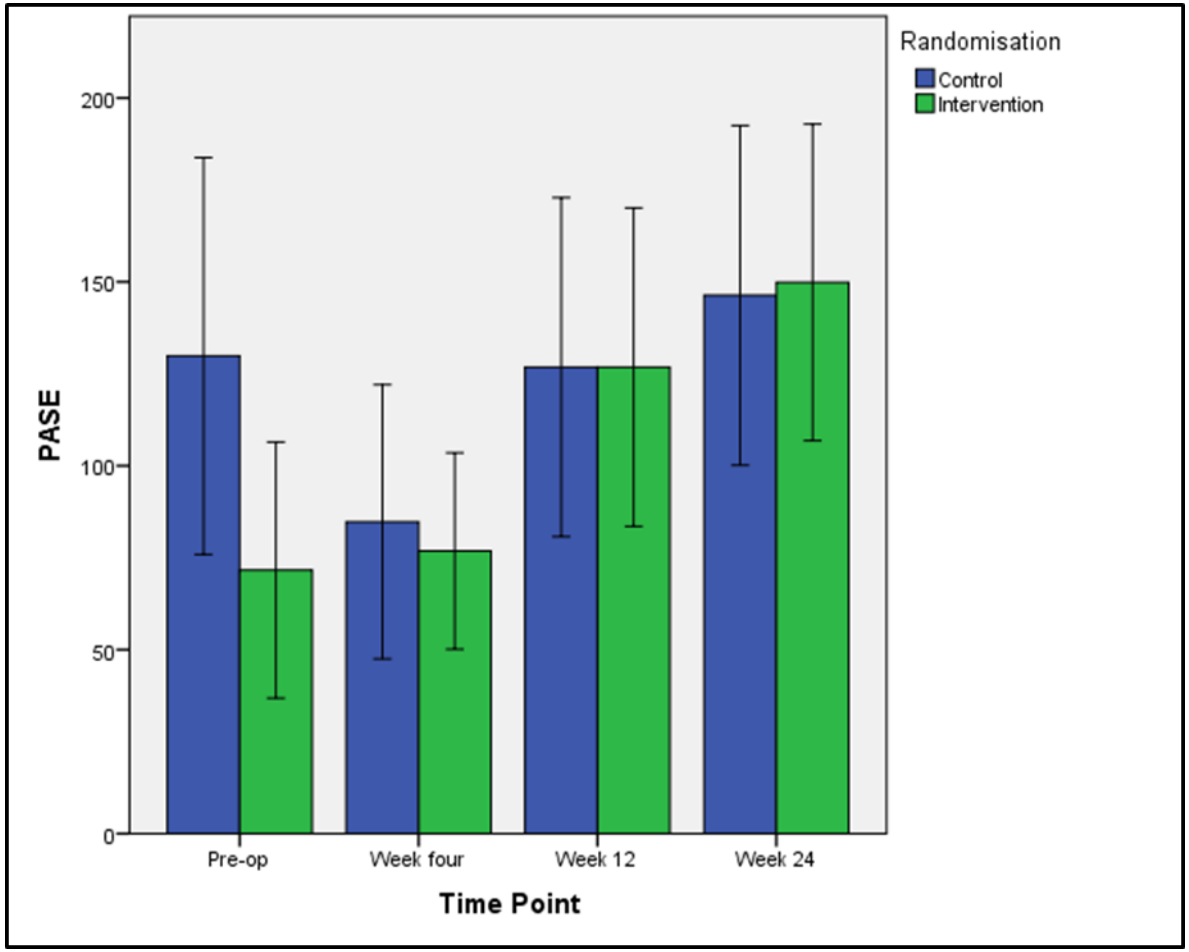

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Adherence to the intervention

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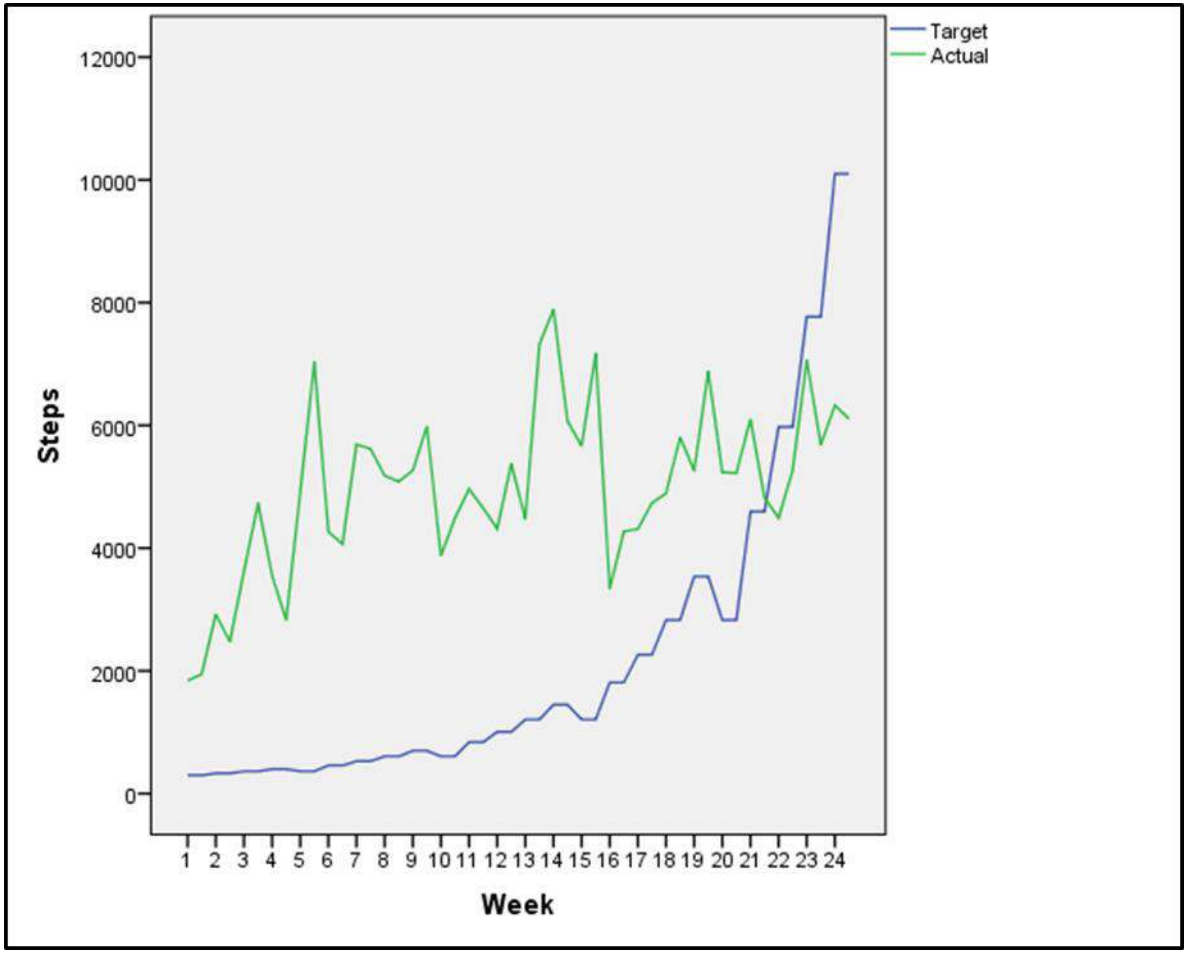

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Conclusion

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- Joint replacements are highly successful operations.
- However it is important to consider novel interventions and how they could help in further developing post-operative rehabilitation.
- More research is needed in high quality trials to further this field of work.

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