PHYSICAL ACTIVITY OUTCOMES IN PATELLOFEMORAL VS. TOTAL KNEE REPLACEMENTS: A RANDOMISED CONTROL TRIAL FOR ISOLATED PATELLOFEMORAL JOINT OSTEOARTHRITIS

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AIM

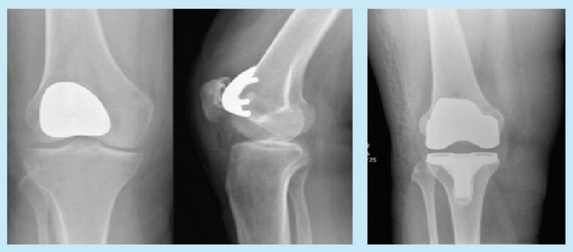
The purpose of this study was to determine differences in physical activity amongst patients who had had a total knee replacement (TKR) or patellofemoral joint replacement (PFR), in a randomised controlled trial, 10 years after surgery.

METHODS

Patients with isolated patellofemoral joint osteoarthritis were recruited to a randomised control trial. Patients were randomised 1:1 to PFR or TKR between 2007 and 2014. Patients were invited back to participate 10 years later.

Those who accepted wore a GENEActiv wrist worn accelerometer for 7 days. The duration of inactivity, light, moderate, and vigorous activity was compared between groups. Total physical activity, total step count, and 24-hour ENMO acceleration were measured and compared using T-tests or Wilcoxcon tests.

Inactive, light, moderate and vigorous activity thresholds were determined according to Hillebrand et al study, these were, inactive as accelerometer values below 45.7mg, light 45.8-93.1mg, moderate 93.2-418.2mg, vigorous activity above 418.3mg[1]



RESULTS

There were a total of 30 patients recruited as part of the study, 17 patients had a PFR and 13 patients had a TKR.

Baseline patient clinical characteristics of study participants included in the study are found table 1
Data are presented as mean for continuous measures (SD) and n(%) for categorical measures.

Table 1: Baseline patient clinical characteristics of study participants included in the study

Variable		PFR (n=17)	TKR (n=13)	p- value
Age		75.2 (7.8)	74.2 (10.6)	P >0 .05
Gender, n (%)	Female	13 (76)	10 (77)	
	Male	4 (24)	3 (23)	P >0 .05
Body Mass Index (kg/m2)		28.1 (4.8)	27.8 (4.2)	P >0 .05
Charlson Comorbidity Index		3.6 (1.5)	3.8 (1.5)	P >0 .05

As seen in Fig 1, PFR patients did more minutes of total physical activity, 1276.3 minutes per week, compared to TKR patients, 1250.7 minutes per week, but the results did not reach a statistical signficance , p=0.89.

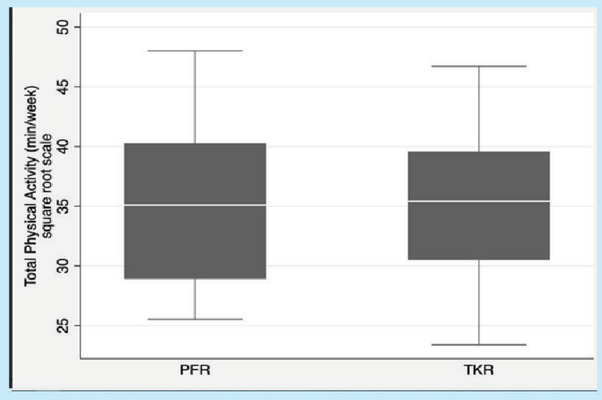


Fig 1: Total physical activity in TKR and PFR patients

As seen in Fig 2, PFR patients had a higher step count, 40315.8 steps per week, compared to TKR patients, 36986.4 steps per week, but failed to show a statistical significance p > 0.05.

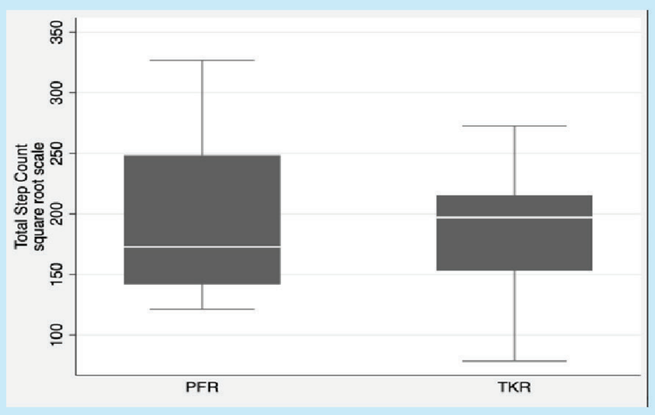


Fig 2: Total step count in TKR and PFR patients

As seen in Fig 3, there was no statistically significant difference between the duration of light, moderate and vigorous activity performed.

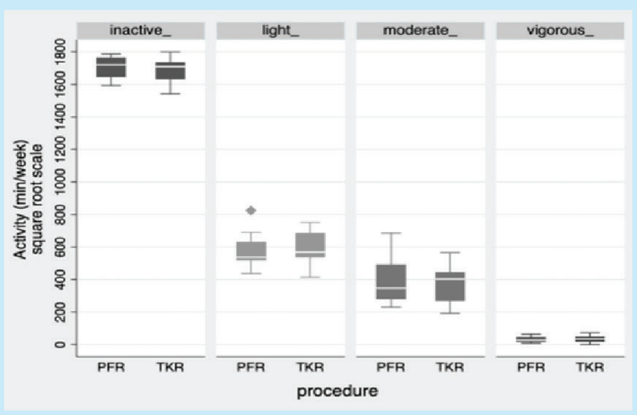


Fig 3: Types of physical activity in TKR and PFR patients

CONCLUSION

Although PFR preserves the cruciate ligaments and restores normal biomechanics compared to TKR, there was no statistical significant difference in physical activity between PFR and TKR participants at the 10 year post-operative mark.

REFRENCES

1. Hildebrand M, Hansen BH, van Hees VT, Ekelund U. Evaluation of raw acceleration sedentary thresholds in children and adults. Scand J Med Sci Sports. 2017 Dec 22;27(12):1814–23.
2. HILDEBRAND M, VAN HEES VT, HANSEN BH, EKELUND U. Age Group Comparability of Raw Accelerometer Output from Wrist- and Hip-Worn Monitors. Med Sci Sports Exerc. 2014 Sep;46(9):1816–24.