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Predictors of high Oxford Knee Scores at 1 year following TKR - Analysis of 4126 knees at a single Centre

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Disclosures

Payam Tarassoli, Yoong Lim

None

David Parker

Speaker for Smith & Nephew
Paid Consultant for Smith & Nephew
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Editorial or Governing board of AJSM, OJSM, JISAKOS, SMARTT Journal
Board of Directors member for ACL Study Group, Asia Pacific Knee Arthroscopy and Sports Medicine Society, Asia Pacific Knee Society, International Society of Arthroscopy, Knee Surgery, and Orthopaedic Sports Medicine

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Background

- Defining what a “good” Oxford knee score is difficult and ultimately subjective
- Objectively we know that mean 1y scores vary between 32-36 for TKR
- Ceiling effects exist, and occur predictably, but are not always consistent across studies and geographical cohorts
- What constitutes a “good score” in one cohort may be different in another

Hypotheses/Observations

- OKS scores generally higher than the reported literature
- Larger ceiling effect in our cohort

Aims

- Explore the distribution of 1 year post op scores
  - Quantify ceiling effect in our cohort
- Determine if any patient or surgical variables were predictive of the highest scores in our cohort

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Methods

- Retrospective analysis of prospectively collected data in SOCRATES
- OKS scores at SORI from October 2002 until December 2022
- Linked patient demographic and baseline data
- Linked surgical data
  - Status of cartilage, soft tissues
  - Implant details
  - Preoperative and intraoperative (achieved) ROM

- **Construction of Nomogram**
  - Binary outcome of 1y OKS as a cutoff
  - Chi-squared, univariate and multivariate logistic regression to determine predictive variables
  - Construction of predictive model in Stata 15
  - Training/validation datasets

Identification

7667 knees

Patients who had undergone TKR at SORI on SOCRATES

Excluded

- Revisions
- Previous ipsilateral knee or hip surgery
- Infection or diagnosis of inflammatory joint disorder
- Incomplete data (post op OKS at 11-14m)

Inclusion

4126 knees

Single primary, staged or bilateral simultaneous TKR

Analysis

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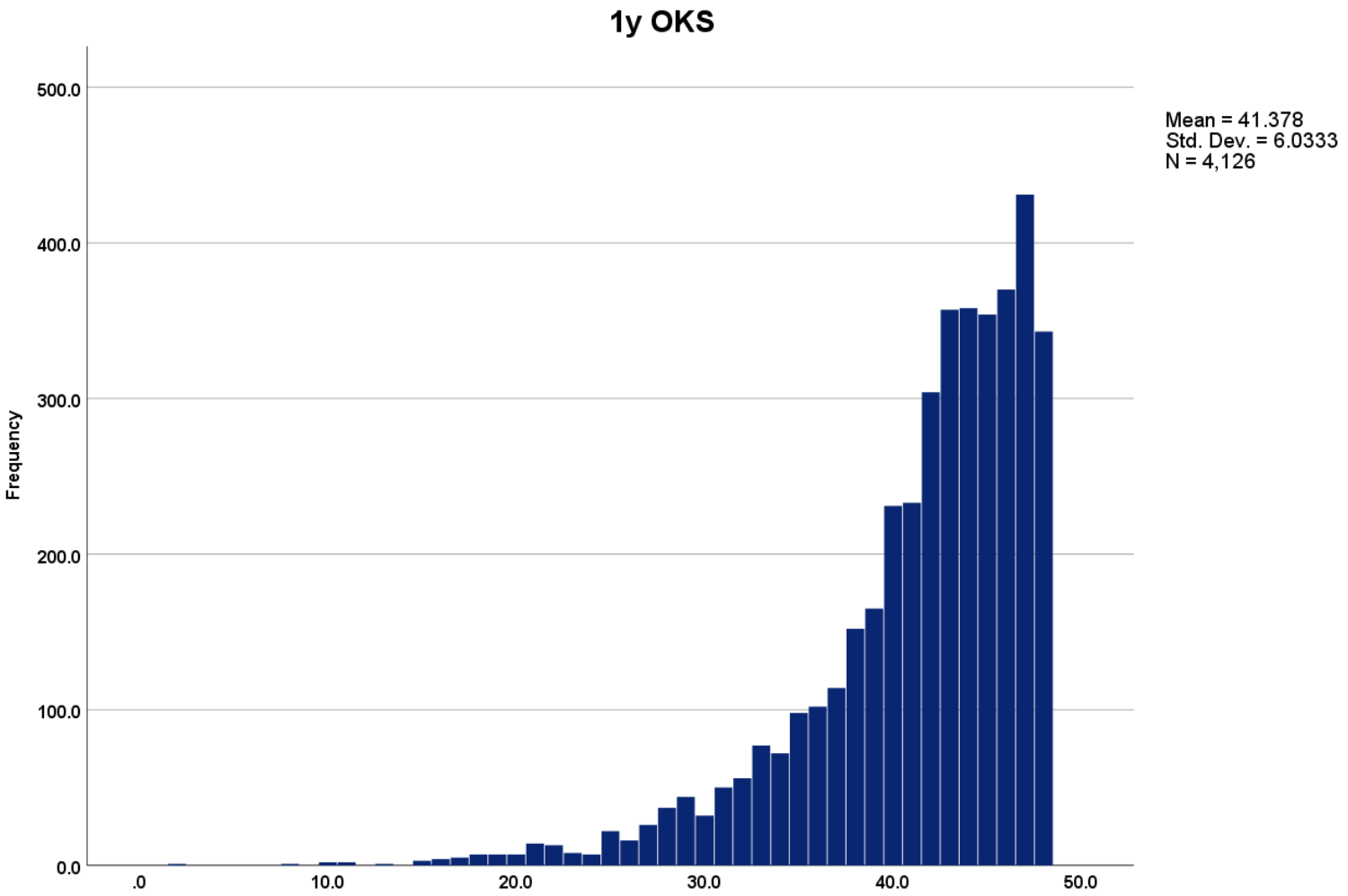
Results – group data

	Minimum	Maximum	Mean	Std. Deviation
Age at surgery	35	100	69.25	8.1
Preop BMI	17	58	29.9	5.5
OKS - Preop	3	47	25.6	7.50
OKS - 1y	2.0	48	41.4	6.03

Results



1y OKS

Percentiles	10	33
	20	37
	30	40
	40	42
	50	43
	60	44
	70	45
	80	46
	90	47

8.4% achieved max score

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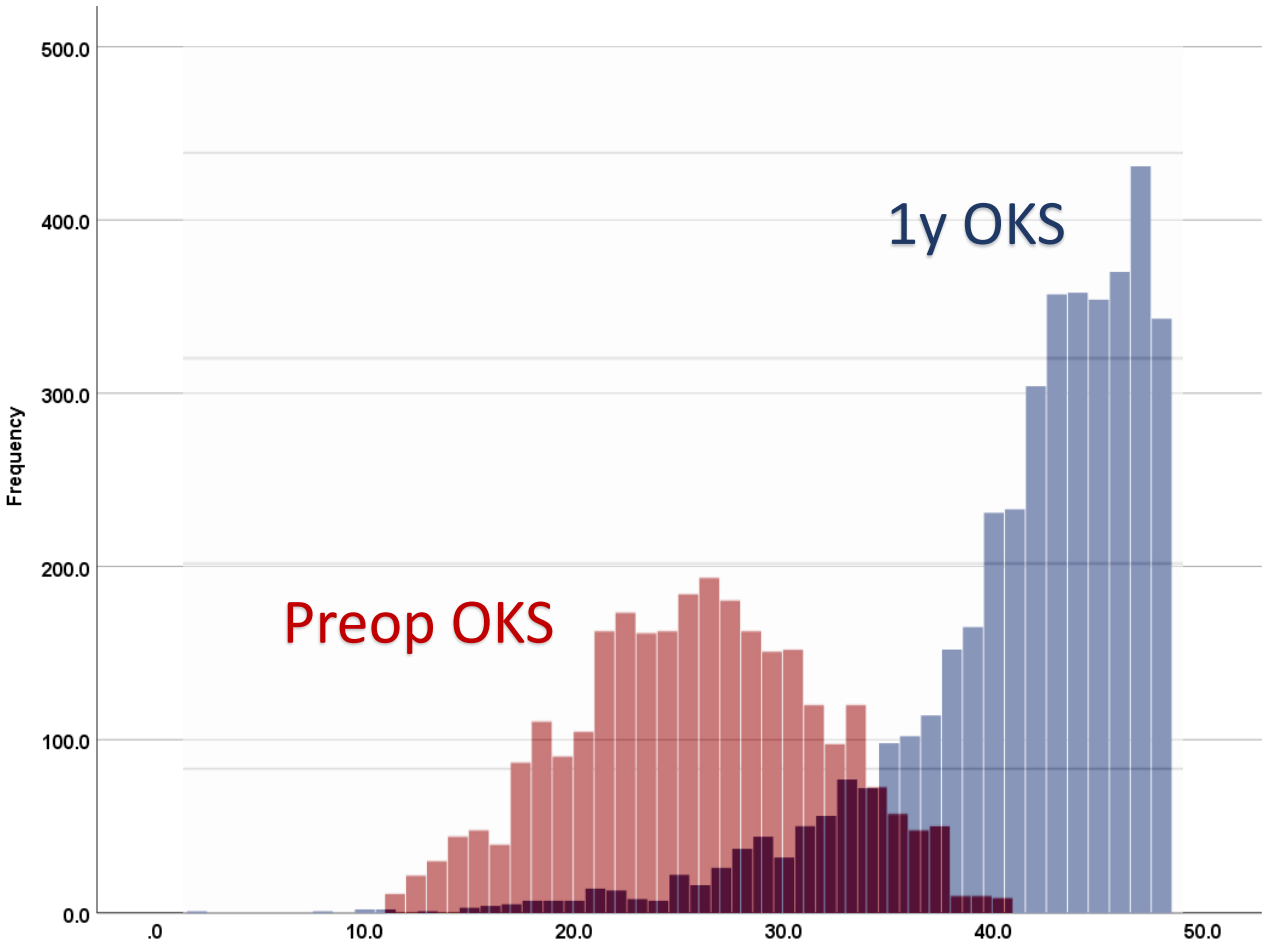
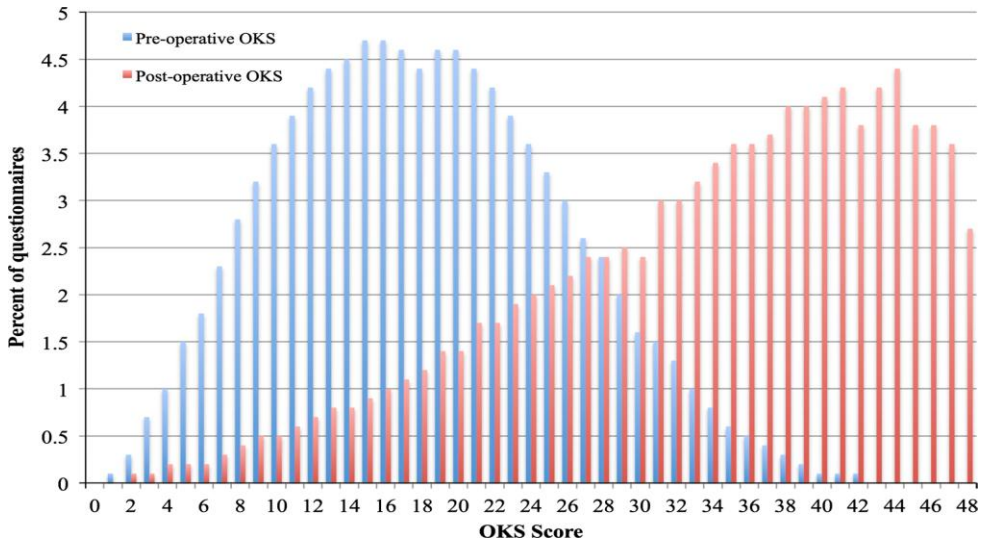
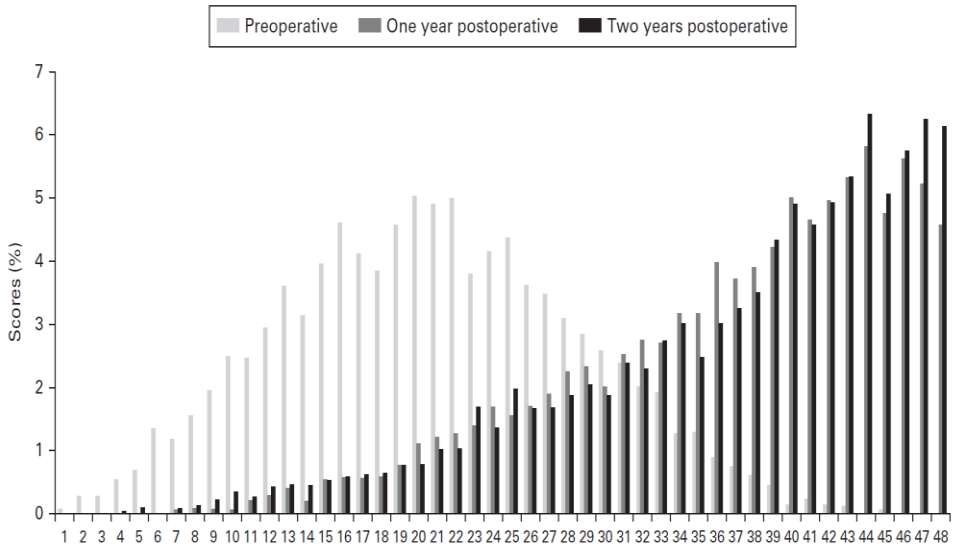


Larger left skew of our data vs literature





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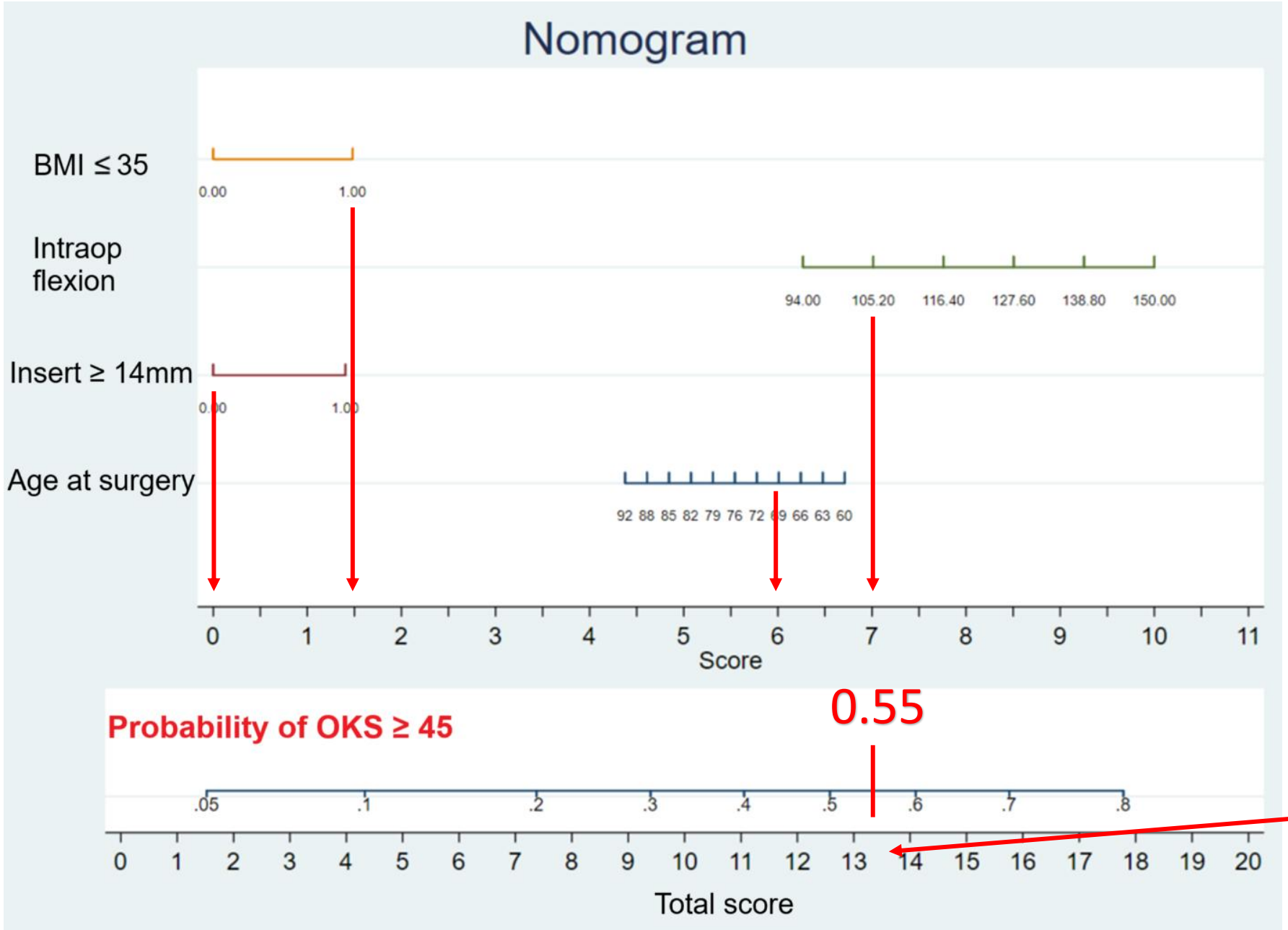
Predictive variables of OKS ≥ 45

- Continuous
  - Age at surgery
  - Intra-operatively achieved flexion

- Dichotomous
  - BMI ≤ 35
  - Insert thickness ≥ 14mm



1.5

+ 7

+ 6

0.55

13.5

Nomogram with worked example in red – adding up the scores from each variable for a total score to determine the probability function of achieving OKS≥45 (0.55 or 55%)

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Conclusions

- Ceiling effect 8.4% at 1 year
  - Marginally higher than literature, arguably still within acceptable limits
- Stronger left skew than literature
  - 30% achieving 45 or more
  - 40% achieving 44 or more
- Identified variables which predict the best outcome in our cohort
- Data support the use of additional outcome scores as adjuncts

Limitations

- Nomogram applicable to our own data only
- Arbitrary threshold of OKS
- Still undetermined as to what represents a “good score”?
- ?Clinically meaningful relevance of scores above a threshold

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References

Osteoarthritis and Cartilage Open 3 (2021) 100143

Contents lists available at ScienceDirect

Osteoarthritis and Cartilage Open

journal homepage: www.elsevier.com/journals/osteoarthritis-and-cartilage-open/2665-9131

Oxford knee score 1 year after TKR for osteoarthritis with reference to a normative population: What can patients expect?

Y.Y.W. Yap [a], K.L. Edwards [a,b,*], H. Soutakbar [a], G.S. Fernandes [a,b], B.E. Scammell [a,b]

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A matched comparison of the patient-reported outcome measures of 38,716 total and unicompartmental knee replacements: an analysis of linked data from the National Joint Registry of England, Northern Ireland and Isle of Man and England's National PROM collection programme

Hasan R MOHAMMAD [1,2], Andrew JUDGE [1,2], and David W MURRAY [1]

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Which Oxford Knee Score level represents a satisfactory symptom state after undergoing a total knee replacement?

Lina H INGELSRUD [1], Berend TERLUIN [2], Kirill GROMOV [1], Andrew PRICE [3], David BEARD [3], and Anders TROELSEN [1]

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Knee Surg Sports Traumatol Arthrosc
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KNEE

The Oxford knee score and its subscales do not exhibit a ceiling or a floor effect in knee arthroplasty patients: an analysis of the National Health Service PROMs data set

Kristina Harris[1] · Christopher R. Lim[1] · Jill Dawson[1] · Ray Fitzpatrick[1] · David J. Beard[1] · Andrew J. Price[1]

Methods NHS PROMs database, containing pre- to 6 month post-operative OKS on 72,154 patients, mean age 69 (SD 9.4), undergoing knee replacement surgery, was examined to establish the proportion of patients achieving top or bottom OKS values pre- and post-operatively.

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journal homepage: www.elsevier.com

Original article

The ceiling effects of patient reported outcome measures for total knee arthroplasty

Lukas Eckhard [a,b,*], Selin Munir [b], David Wood [c], Simon Talbot [d], Roger Brighton [e], Bill Walter [f], Jonathan Baré [g]

KNEE

The preoperative Oxford Knee Score is an independent predictor of achieving a postoperative ceiling score after total knee arthroplasty

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