

Influence of adherence to prehabilitation before total knee replacement for knee osteoarthritis on post-operative functional independence: secondary analyses of a randomized controlled trial (EDEX)

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Disclosures

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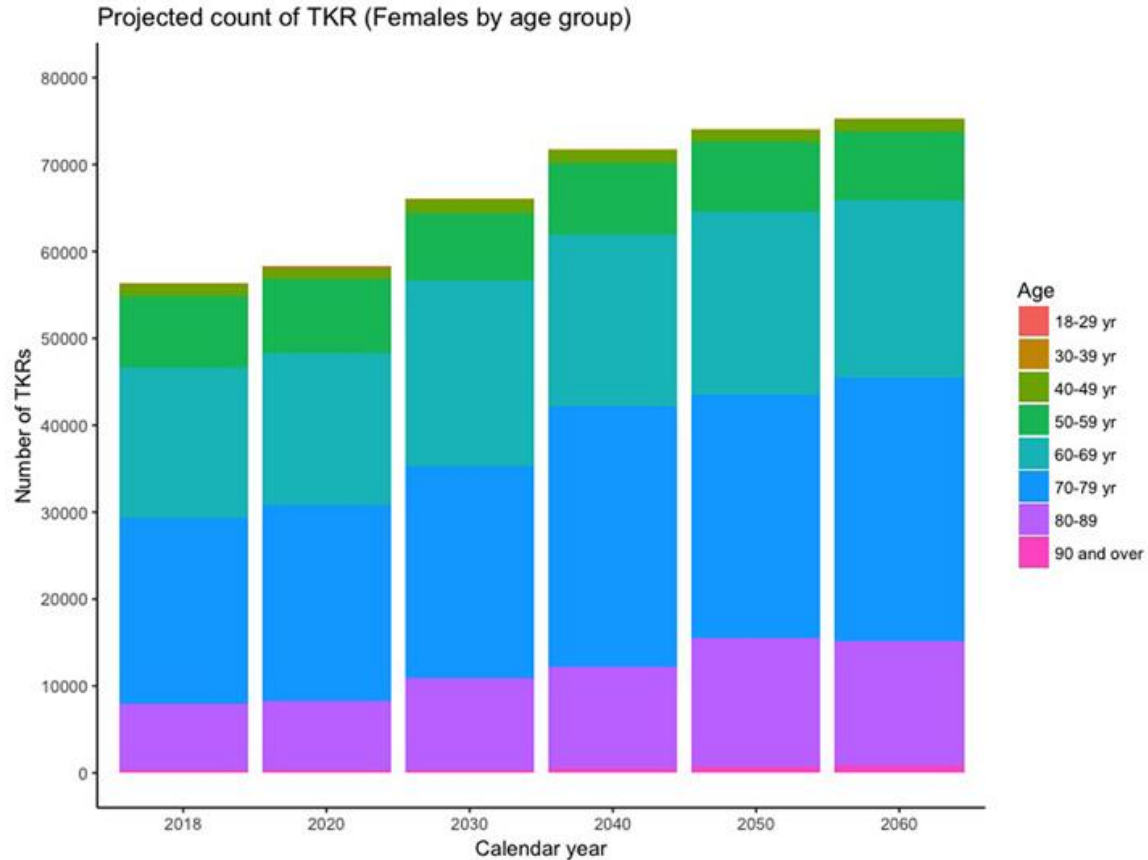
*Liberté
Égalité
Fraternité*

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**AP-HP. Centre
Université
Paris Cité**

Growing demand for total knee replacement (TKR)



By 2060, the UK demand will increase by almost 40% (137.000 vs 101.000)

- Numbers doubling in patients aged 80–89 years
- Numbers increasing fourfold in patients aged 90 years and above

➤ Risk of medical and surgical complications in older patients

- 40% for each subsequent 10 years of age

Prehabilitation before TKR

Prehabilitation = rehabilitation delivered before surgery

→ Part of the strategie offered to improve post-operative outcomes in patients with TKR

- Stand-alone interventions
- Multimodal prehab programs

Evidence before EDEX trial

→ Prehab may slightly improve outcomes and reduce the length of hospital stay

- **BUT**, in a systematic review of 11 RCTs
 - 5 trials were rated as low to moderate quality
 - Sample sizes were small from 20 to 131 participants

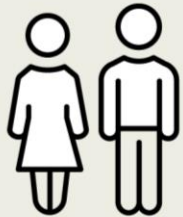
Primary objective of EDEX trial: to compare multidisciplinary prehabilitation with usual care before TKR for osteoarthritis in terms of functional independence and activity limitations after surgery

What we found in the EDEX trial

RCT: Effect of Prehabilitation Before Total Knee Replacement for Knee Osteoarthritis on Functional Outcomes

POPULATION

84 Men, 178 Women



Adults aged 50-85 y with knee osteoarthritis for whom a total knee replacement (TKR) was scheduled
Mean (SD) age: 68.6 (8.0) y

SETTINGS / LOCATIONS



Three tertiary care centers in France

INTERVENTION

262 Participants randomized



131 Prehabilitation

Four 90-min supervised sessions of multidisciplinary rehabilitation and education before TKR



131 Usual care

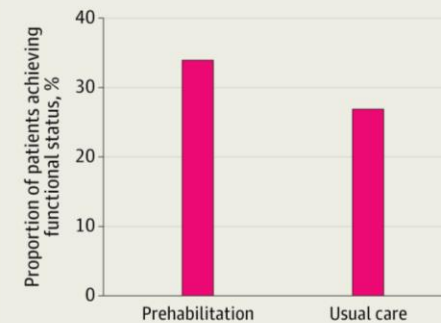
Information booklet and standard advice from orthopedic surgeon before TKR

PRIMARY OUTCOME

The short-term end point was functional independence on day 4 after surgery

FINDINGS

There was no significant difference between the prehabilitation and usual care groups in functional status on day 4 after surgery



Functional independence at day 4:

Prehabilitation, 34%; usual care, 27%
Risk ratio, 1.3; 97.5% CI, 0.7-2.3; $P = .15$

How to explain our « negative » results?

1. Prehab was not effective?
2. Prehab effects were « masked » by the large post-operative effects of TKR?
3. Prehab effects were « diluted » because of low adherence to prehab?
 - 51/131 (39%) participants allocated to prehab **attended 4 sessions**
 - 23/131 (18%) participants allocated to prehab **attended 0 session**

Objectives of EDEX secondary analyses

To describe in adherent and non-adherent participants of the experimental group

- Baseline demographical and clinical characteristics
- Percentage who reached functional independence (assessed with the ZAVADAK test) at day 4
- Activity limitations (assessed with the WOMAC function area under the curve (AUC)) at 6 months

≥ 2 supervised sessions = adherent participants (**N=92**)

< 2 supervised sessions = non-adherent participants (**N=32**)

Analyses

Descriptive analyses

- Categorical variables were described with frequencies and percentages
- Quantitative variables were described with mean (SD)

No comparative analyses

On going analyses (not presented today)

- Complier Average Causal Effect (CACE)

Results

Influence of adherence to prehabilitation before total knee replacement for knee osteoarthritis on post-operative outcomes: secondary analyses of a randomized controlled trial (EDEX)

Mathieu Gagnière MD, Emmanuel Coudeyre MD, PhD, Hendy Abdoul MD, PhD, Johann Beaudreuil MD, PhD, Camille Daste MD, MPH, Camille Ollivier MSc, Alexandra Rören PT, PhD, Marie-Martine Lefèvre-Colau MD, PhD, François Rannou MD, PhD, Christelle Nguyen MD, PhD

Gagnière M et al (in preparation)

Baseline demographical characteristics

	Non-adherent N=32	Adherent N=92	Total N=124
• Age (years)	66.4 (6.3)	68.6 (7.5)	68.0 (7.3)
• Women	22 (69)	66 (72)	88 (71)
• Body mass index (kg/m ²)	29.5 (5.2)	29.3 (4.7)	29.4 (4.8)
• Higher education	14 (45)	34 (37)	48 (39)

Baseline clinical characteristics

	Non-adherent N=32	Adherent N=92	Total N=124
	OA characteristics		
• Other OA location	21 (66)	73 (79)	94 (76)
• Medial femorotibial OA	25 (78)	80 (87)	105 (85)
• Lateral femorotibial OA	16 (50)	44 (48)	60 (48)
• Patellofemoral OA	26 (81)	79 (86)	105 (85)
	OA symptoms		
• Symptom duration (years)	9.8 (7.9)	9.6 (7.3)	9.7 (7.4)
• Knee pain intensity	49.7 (26.6)	53.9 (23.3)	52.8 (24.2)
• WOMAC function (0-68)	49.3 (19.0)	48.2 (17.9)	48.5 (18.1)
• SF-12 mental score (0-100)	42.6 (10.8)	44.0 (12.1)	43.6 (11.8)
• SF-12 physical score (0-100)	36.3 (6.1)	37.5 (5.1)	37.2 (5.4)
• Number of steps a day	3763.7 (1790.2)	3866.2 (2235.7)	3847.9 (2152.1)
	Current treatments		
• Intra-articular corticosteroids	20 (63)	59 (65)	79 (64)
• Intra-articular hyaluronan	21 (66)	64 (70)	85 (69)
• Oral analgesics	26 (81)	66 (73)	92 (75)
• Oral NSAIDs	10 (31)	37 (41)	47 (38)
• Foot orthosis	4 (13)	19 (21)	23 (19)
• Physiotherapy	6 (19)	16 (18)	22 (18)
• Walking aids	9 (28)	31 (34)	40 (33)
• Weight management, n (%)	9 (28)	19 (21)	28 (23)

Outcomes

	Non-adherent N=32	Adherent N=92	Total N=124
• Functional independence at day 4	5 (16)	28 (30)	33 (27)
• WOMAC function AUC at 6 months*	234.49	181.69	212.71

*lower scores indicate lower levels of activity limitations

Summary and perspectives

Descriptive profile of adherent and non-adherent participants may slightly differ

Non adherent

Higher education

Oral analgesics

Weight management

Adherent

**Other OA location
Medial knee OA**

**Oral NSAIDs
Foot orthosis
Walking aids**

**Higher pain intensity
Better HRQoL**

Outcomes may be better in adherent than non-adherent participants

PERSPECTIVES

Complier Average Causal Effect (CACE) analysis

➔ Comparison of adherent participants to the control group of EDEX trial

Acknowledgements

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Prof. Emmanuel Coudeyre

Thank you

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