



Supplementary Material

Table i. Summary of studies included.

Author, yr	Study design	Follow-up, yrs	Sample size	Inclusion criteria	Mean age, yrs (SD or range)	Sex of participants at final follow-up (M:F)	Mean BMI, kg/m ² (SD)	Outcome measures	Implants used	Risk of bias
RCT studies										
Fredborg et al 2020 ³⁹	RCT	1	100	Radiologically bone-on-bone contact on tangential view of patellofemoral joint and preserved joint lines on a posteroanterior (PA) weightbearing view of the knee.	PFA: 64 (8.6) TKA: 64.4 (9.3)	PFA: 11:39 TKA: 12:38	PFA: 28 (4.7) TKA: 27.8 (4.1)	PROMS: EQ-5D SF-6D Complications: Duration of surgical procedure. Length of stay. Use of primary care resources.	PFA: Avon (Stryker Orthopaedics, USA) TKA: PFC Sigma fixed-bearing CR implant (DePuy Synthes, USA).	Low

Joseph et al 2020 ³⁸	RCT	5	64	Pragmatic approach. Skeletally mature with severe isolated patellofemoral arthritis deemed suitable for a PFA by surgeons.	PFA: 64.7 (10.5) TKA: 64.4 (12.8)	12:48	PFA: 28.9 (6.7) TKA: 29.2 (4.2)	PROMS: WOMAC, OKS, AKSS, UCLA, EQ-5D-3L, EQ-VAS	PFA: Avon(Stryker Orthopaedics, USA) FPV (Wright Medical Technology, USA) Zimmer (Zimmer Biomet, USA) TKA: NexGen (Zimmer Biomet) Vanguard (Zimmer Biomet) Triathlon (Stryker) Medial Pivo (MicroPort Orthopaedics, USA).	Some concerns
Odgaard et al 2018 ⁴⁰	RCT	2	100	Debilitating symptoms of PFJ OA where conservative	64 (8.9)	23:77	Not published	PROMS: SF-36, OKS, KOOS, Physical examination	PFA: Avon (Stryker Orthopaedics, USA)	Some concerns

				<p>management had failed</p> <p>Clinical examination indicating isolated PFJ OA.</p> <p>Radiological examination including tangential radiographs showing bony contact in the patellofemoral joint and preserved tibiofemoral joint lines.</p>				<p>(ROM, swelling), reoperations and serious adverse events – death, revision, deep infection, revision.</p>	<p>TKA: PFC Sigma fixed-bearing CR implant (DePuy Synthes, USA).</p>	
Odgaard et al 2022 ¹	RCT	6	100	<p>Debilitating symptoms of PFJ OA where conservative management had failed.</p> <p>Clinical examination indicating isolated PFJ OA.</p> <p>Radiological examination</p>	64 (8.9)	42:47	Not published	<p>PROMS: SF-36, OKS, KOOS</p>	<p>PFA: Avon (Stryker Orthopaedics, USA)</p> <p>TKA: PFC Sigma fixed-bearing CR implant (DePuy Synthes, USA).</p>	Some concerns

				including tangential radiographs showing bony contact in the patellofemoral joint and preserved tibiofemoral joint lines.						
Cohort studies										
Kamikovski et al 2019 ³⁴	Retrospective cohort study	5.3	42	Propensity matched based on age, sex, BMI, and side. Younger than 55 years.	50.4 (2.9)	PFA: 20:3 TKA: 19:4	PFA: 28.5 (5.6) TKA: 28.2 (5.8)	PROMS: KOOS, WOMAC, UCLA, Tegner activity scale	PFA: Avon (Stryker Orthopaedics, USA) Gender Solutions PFJ (Zimmer Biomet, USA)	Serious
Perrone et al 2018 ³⁵	Retrospective cohort study	2.7	50	Consecutive PFA patients randomly selected 60 patients undergoing TKA	PFA: 52.4(10.6) TKA: 72.9 (10.2)	PFA: 5:13 TKA: 12:19	PFA: 27.9 (4.4) TKA: 30.2 (3.7)	PROMS: OKS, KOOS-PS, Kujala score	Gender Solutions PFJ (Zimmer Biomet, USA) TKA: NexGen LPS (Zimmer Biomet).	
Dahm et al 2010 ¹¹	Retrospective cohort study	2.4	45 knees	Isolated Patellofemoral arthritis Kellgren-Lawrence score < 2	PFA: 60 (39 to 81) TKA: 69 (44 to 83)	Not published	PFA: 30 TKA: 30	PROMS: KSS, Tegner activity, UCLA	PFA Avon (Stryker Orthopaedics, USA)	Serious

				at the tibiofemoral joint Iwano score > 2 at patellofemoral joint.				Trochlear dysplasia assessed using Dejour Classification method Patella position assessed using the Insall-Slavati Index. Complications: Blood loss Hospital stay Functional outcomes (ROM).	TKA (Zimmer Biomet, USA), or SIGMA (DePuy Orthopaedics, USA)	
Clement et al 2019 ³⁷	Retrospective cohort study	9.2	108	Severe symptomatic OA of the patellofemoral joint with complete loss of joint space, refractory to conservative management Propensity score matching based on	PFA: 62.4 (11.3) TKA: 64 (10.8)	PFA: 5:49 TKA: 8:46	Not recorded	PROMS: OKS, SF-12	PFA: Avon (Stryker Orthopaedics, USA) TKA: Triathlon, Kinematic (Stryker, USA)	Moderate

				age at time of surgery, sex, comorbidities, severity of radiological involvement, and preoperative functional scores.						
Foote et al 2010 ³⁶	Retrospective consecutive cohort study	36 months	109	Patients included from hospital records.	PFA: 52.2 (40 to 59) TKA: 54.1 (44 to 59)	28:50	Not recorded	PROMS: OKS, WOMAC Return to work (time from operation to return to work, performing normal duties). Patients' subjective opinion on their ability to return to work.	PFA: Avon (Stryker Orthopaedics, USA) TKA: Rotaglide Plus (Boston Scientific, USA)	Serious

EQ-5D, EuroQol five-dimension questionnaire; EQ-5D-3L, EuroQol five-dimension three-level questionnaire; EQ-VAS, EuroQol visual analogue scale; KOOS, Knee injury and Osteoarthritis Outcome Score; KSS, Knee Society Score; OA, osteoarthritis; OKS, Oxford Knee Score; PFA, patellofemoral arthroplasty; PFJ OA, patellofemoral joint osteoarthritis; PROMs, patient-reported outcome measures; RCT, randomized controlled trial; ROM, range of motion; SF-6D, Six-Dimension Short-Form Health Survey; SF-12, 12-Item Short-Form Health Survey questionnaire; SF-36, 36-Item Short-Form Health Survey questionnaire; TKA, total knee arthroplasty; UCLA, University of California-Los Angeles; WOMAC, Western Ontario and McMaster Universities osteoarthritis index.

Table ii. Cochrane risk-of-bias tool for randomized controlled trials (ROB-2).

		Risk of bias domains					Overall
		D1	D2	D3	D4	D5	
Study	Odgaard 2022						
	Joseph 2020						
	Fredborg 2020						
	Odgaard 2018						

Domains:
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
D5: Bias in selection of the reported result.

Judgement
 Some concerns
 Low

Table iii. Cochrane risk-of-bias in non-randomized studies of interventions (ROBINS-I) tool.

		Risk of bias domains							Overall
		D1	D2	D3	D4	D5	D6	D7	
Study	Kamikovski 2019								
	Dahm 2010								
	Clement 2019								
	Foote 2010								
	Perrone 2018								

Domains:
D1: Bias due to confounding.
D2: Bias due to selection of participants.
D3: Bias in classification of interventions.
D4: Bias due to deviations from intended interventions.
D5: Bias due to missing data.
D6: Bias in measurement of outcomes.
D7: Bias in selection of the reported result.

Judgement
 Serious
 Moderate
 Low
 No information

Search strategy.

1. exp patellofemoral joint/
2. exp patellofemoral joint/ or patellofemoral osteoarthritis.mp.
3. Joint replacement.mp. or exp replacement arthroplasty/
4. 2 and 3

No restrictions on the publication date.

Restricted to published studies and studies written in the English language only.