

Supplementary Information

Article Title - Impact of glucagon-like peptide-1 receptor agonists on knee arthroplasty outcomes

Journal name - Indian Journal of Orthopaedics

Supplementary Table S1. Full electronic search strategy for each database as of [01/06/2025]

Database	Search Strategy
Medline (via PubMed)	("Arthroplasty, Replacement, knee"[Mesh] OR "knee Prosthesis"[Mesh] OR "knee Arthroplasty, Total"[Mesh] OR "knee arthroplasty"[tiab] OR "knee replacement"[tiab] OR "total knee arthroplasty"[tiab] OR "TKA"[tiab]) AND ("Glucagon-Like Peptide 1"[Mesh] OR "Glucagon-Like Peptide 1 Receptor"[Mesh] OR "GLP-1 receptor agonist"[tiab] OR "GLP-1"[tiab] OR "incretin mimetic"[tiab] OR "semaglutide"[tiab] OR "liraglutide"[tiab] OR "dulaglutide"[tiab] OR "exenatide"[tiab] OR "lixisenatide"[tiab]) AND ("Postoperative Complications"[Mesh] OR "Surgical Wound Infection"[Mesh] OR "readmission"[tiab] OR "revision"[tiab] OR "reoperation"[tiab] OR "infection"[tiab] OR "infections"[tiab] OR "periprosthetic fracture"[tiab] OR "periprosthetic joint infection"[tiab] OR "PJI"[tiab]OR "medical complications"[tiab])
Embase	('knee arthroplasty'/exp OR 'knee prosthesis'/exp OR 'total knee arthroplasty':ti,ab OR 'knee arthroplasty':ti,ab OR 'knee replacement':ti,ab OR TKA:ti,ab) AND ('glucagon like peptide 1'/exp OR 'glucagon like peptide 1 receptor agonist'/exp OR 'glucagon like peptide 1 receptor':ti,ab OR 'glp-1 receptor agonist':ti,ab OR 'GLP-1':ti,ab OR 'incretin mimetic':ti,ab OR semaglutide:ti,ab OR liraglutide:ti,ab OR dulaglutide:ti,ab OR exenatide:ti,ab OR lixisenatide:ti,ab) AND ('postoperative complication'/exp OR 'surgical wound infection'/exp OR readmission:ti,ab OR revision:ti,ab OR reoperation:ti,ab OR infection:ti,ab OR infections:ti,ab OR 'periprosthetic fracture':ti,ab OR 'periprosthetic joint infection':ti,ab OR PJI:ti,ab OR 'medical complication':ti,ab)
Cochrane Central Register of Controlled Trials (CENTRAL)	(knee arthroplasty OR knee replacement OR total knee arthroplasty OR knee prosthesis OR TKA) AND (GLP-1 OR GLP-1 receptor agonist OR glucagon like peptide 1 OR glucagon like peptide 1 receptor OR incretin mimetic OR semaglutide OR liraglutide OR dulaglutide OR exenatide OR lixisenatide) AND (postoperative complication OR surgical wound infection OR infection OR infections OR readmission OR revision OR reoperation OR periprosthetic fracture OR periprosthetic joint infection OR PJI OR medical complication)

Supplementary Table S2. ROBINS-I risk of bias assessments with justifications for each included study

Study	ROBINS-I Domain							
	Confounding	Selection of participants	Classification of interventions	Deviations from intended interventions	Missing data	Measurement of outcomes	Selection of reported result	Overall
Buddhiraju 2024	Did not match for BMI as continuous variable	Participants were selected based on pre intervention characteristics, with selection unlikely to be influenced by outcome status	Included if prescription recorded from 1 year to 15 days pre-op; may reflect short past use rather than sustained exposure	Retrospective design with no evidence of differential deviations from the intended intervention between groups	No indication of missing outcome data; relevant endpoints appeared complete and consistently reported across groups	Outcomes were derived from administrative or electronic health records, with potential for misclassification	All prespecified outcomes and time points were reported; where available, protocols were reviewed. No evidence of selective reporting	Moderate
Heo 2024	Key confounders such as diabetes severity (hba1c) and BMI as continuous variable were not counted for		Exposure defined as ≥3 fills in 6 months or ≥1 90-day fill pre-op ensured reliable perioperative exposure		Although data was not missing multiple outcomes were reported as <11, obscuring the exact values			Moderate
Kim 2025			Defined as minimum three months pre- and post-op use, ensuring clear perioperative exposure					Moderate
Levidy 2025	Propensity score matching included key confounders such as BMI (categorised) and HbA1c, reducing risk of residual confounding		Included if prescription recorded 12 month prior to surgery; may reflect short past use rather than sustained exposure		No indication of missing outcome data; relevant endpoints appeared complete and consistently reported across groups			Moderate
Magruder 2023	Key confounders such as diabetes severity (hba1c) and BMI as continuous variable were not counted for		Exposure defined as having GLP - 1RA prescription at surgery; duration unclear, raising some misclassification risk					Moderate
Katzman 2025			Perioperative GLP-1RA use is clearly defined as active use within 6 months before and continued within 3 months after surgery.					Moderate

■ Low ■ Moderate ■ Serious

