

TOTAL HIP ARTHROPLASTY

SUMMARY RECOMMENDATIONS

Notes on PROSPECT recommendations

PROSPECT provides clinicians with supporting arguments for and against the use of various interventions in postoperative pain based on published evidence and expert opinion. Clinicians must make judgments based upon the clinical circumstances and local regulations. At all times, local prescribing information for the drugs referred to must be consulted.

Pain after elective primary total hip arthroplasty (THA)

Postoperative pain following elective THA is a major challenge that can hinder early mobilisation, rehabilitation, and patient satisfaction, while increasing opioid use and the risk of postoperative complications ([Memtsoudis 2021](#)). These issues are particularly relevant as enhanced recovery and outpatient THA pathways become more widespread, highlighting the need for effective motor-sparing analgesic techniques.

Pain is typically most severe during the first 24 hours after surgery, a critical period that influences early ambulation, opioid consumption, and functional recovery ([Panzenbeck 2021](#)). Optimising multimodal analgesia during this window is essential to support recovery and improve postoperative outcomes.

Aims and methods of the PROSPECT review

New evidence has emerged since publication of the previous PROSPECT recommendations for postoperative pain management after elective primary THA ([Anger 2021](#)), particularly on motor-sparing regional techniques. This review ([Carella 2026](#)) aimed to assess the available literature and update the previous PROSPECT recommendations, with focus on evaluating evidence regarding regional anaesthesia techniques, local infiltration analgesia (LIA), neuraxial adjuvants, and systemic 'non-basic analgesic' pharmacological interventions.

The PROSPECT group performed the systematic review and formulated the recommendations using the unique PROSPECT methodology, available at <https://esraeurope.org/prospect-methodology/>. This methodology was first published in [Joshi 2019](#) and updated in [Joshi 2023](#).

Literature databases (MEDLINE, Embase, and the Cochrane Library) were searched from 1 January 2020 to 1 June 2024 to identify randomised controlled trials (RCT), systematic reviews or meta-analyses of adult patients undergoing elective primary THA, that investigated perioperative analgesic, anaesthetic, or surgical interventions aimed at THA

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improving postoperative pain management. Studies had to report pain outcomes using a linear scale, such as the Visual Analogue Scale or Numerical Rating Scale, and could include secondary endpoints such as opioid consumption, functional recovery, or adverse events. Only articles published in English and registered in a recognised clinical trial database were considered.

From the literature search, 71 RCT and 32 systematic reviews or meta-analyses met the inclusion criteria. Evidence was evaluated according to PROSPECT methodology, focusing on pain within 24 hours, opioid consumption, functional recovery, and adverse effects.

The included studies were interpreted in the context of standard multimodal analgesia (paracetamol with NSAIDs or COX-2 inhibitors), and recommendations were based on the balance between analgesic efficacy, adverse effects, and clinical applicability.

This review is registered on PROSPERO: CRD42024572651.

Summary of recommendations and key evidence

Summary of recommendations and key evidence for pain management in patients undergoing primary THA

Basic analgesia (recommended for all patients)

Paracetamol combined with NSAIDs or COX-2-selective inhibitors is recommended, administered either preoperatively or intraoperatively, unless contraindicated

- In accordance with PROSPECT methodology ([Joshi 2023](#)), RCTs representing basic analgesics (paracetamol, NSAIDs, COX-2 specific inhibitors) were not included in this updated review. These components are considered essential to all multimodal analgesic regimens.

A single IV dose of dexamethasone (≤ 10 mg) is recommended for its analgesic, anti-inflammatory, and antiemetic effects

- RCTs in the updated review reinforced the analgesic, anti-inflammatory, and antiemetic properties of dexamethasone, while clarifying optimal dosing and timing regimens ([Mo 2024](#); [Li 2022](#); [Lei 2020](#); [Lei 2020](#); [Nielsen 2023](#)).

Regional analgesia

Single shot supra-FICB is recommended as an effective component of multimodal analgesia.*

OR

Preoperative single shot PENG block is recommended as an alternative motor-sparing technique with comparable efficacy.

Supra-FICB

- High-quality RCTs evaluating preoperative supra-FICB demonstrated consistent and clinically relevant benefits for pain scores, opioid consumption, and functional recovery in patients undergoing THA with a posterolateral approach, without evidence of clinically relevant motor impairment ([Carella 2022](#); [Gola 2021](#); [Bravo 2020](#)).
- The updated findings strengthen and extend previous evidence supporting the efficacy of longitudinal supra-FICB ([Desmet 2017](#)).
- A volume of approximately 40 mL was typically used to achieve adequate supra-inguinal spread with the longitudinal technique ([Desmet 2017](#); [Vermeylen 2019](#)).

PENG block

- PENG block demonstrated superior analgesia and opioid-sparing effects compared with placebo in THA, without motor impairment ([Pascarella 2021](#); [Choi 2022](#); [Domagalska 2023](#); [Kukreja 2023](#)).
- Several meta-analyses also supported the role of the PENG block as an effective component of multimodal analgesia for THA, although heterogeneity in study design and comparator techniques warrants cautious interpretation ([Kim 2023](#); [Ke 2024](#); [She, Liu 2024](#); [Pai 2024](#); [Hu 2024](#)).

Comparative evidence

- Evidence suggests that preoperative PENG and supra-FICB offer comparable clinical benefit ([Carella 2023](#); [Aliste 2021](#)).

Single-shot LIA may be considered as an alternative when regional blocks are not feasible or contraindicated.

- LIA, performed intraoperatively by the surgeon, represents a pragmatic and technically simple option, particularly when regional anaesthesia is not feasible or contraindicated.
- Available evidence indicates that LIA provides transient analgesic benefit confined to the early postoperative period, particularly when regional blocks or optimal multimodal analgesia are not used ([Xiao 2021](#); [Bernaus 2022](#)).
- However, its overall benefit appears modest and context-dependent, and it does not consistently improve pain, opioid use, or functional recovery beyond what can be

achieved with preferred motor-sparing regional techniques ([Ye 2023](#); [Bravo 2023](#); [Et 2023](#)).

- There is currently no good evidence supporting the combination of regional techniques with LIA. The combination does not enhance postoperative analgesic outcomes and may expose patients to higher and potentially toxic concentrations of local anaesthetic.

Neuraxial analgesia

Low-dose intrathecal morphine (≤ 0.1 mg) may be considered, if the patient has received spinal anaesthesia for the surgery and the procedure is performed in an inpatient setting

- The use of intrathecal morphine is supported by consistent procedure-specific evidence in THA. In the updated review, findings of two additional studies ([Vitola 2022](#); [Albrecht 2020](#)) reinforced the role of low-dose intrathecal morphine (0.1 mg) as an effective and safe adjunct in in-hospital settings, while higher doses should be used with caution due to dose-dependent side effects.
- It may be considered as an alternative to peripheral regional techniques in selected inpatient settings, although its use in ambulatory pathways may be limited by monitoring requirements and side effects.

Rescue analgesia

Opioids should be reserved for rescue analgesia

- In accordance with PROSPECT methodology ([Joshi 2023](#)), RCTs investigating opioids were not included in this updated review.

*In the previous PROSPECT review ([Anger 2021](#)), “FICB” referred to all approaches (infra- and supra-inguinal) without distinction. This revision from the previous guidance reflects accumulating clinical evidence of inconsistent analgesia with infra-FICB.

COX, cyclooxygenase; IV, intravenous; LIA, local infiltration analgesia; NSAID, non-steroidal anti-inflammatory drug; PENG, pericapsular nerve group; RCT, randomised controlled trial; supra-FICB, supra-inguinal fascia iliaca compartment block; THA, total hip arthroplasty.

Interventions that are NOT recommended

Analgesic interventions that are not recommended for pain management in patients undergoing primary THA.

Intervention	Reason for not recommending
Regional analgesia techniques	
Infra-inguinal fascia iliaca block	Lack of procedure-specific evidence
Postoperative PENG block	Lack of procedure-specific evidence
Lumbar erector spinae plane block	Inconsistent procedure-specific evidence
Ilio-psoas block	Lack of procedure-specific evidence
Circum-psoas block	Limited procedure-specific evidence
Quadratus lumborum block Anterior (transmuscular)	Procedure-specific evidence, but side effects
Quadratus lumborum block Posterior or lateral	Lack of procedure-specific evidence
Continuous quadratus lumborum block	Lack of procedure-specific evidence
Obturator nerve block	Lack of procedure-specific evidence
Lateral femoral cutaneous nerve block	Lack of procedure-specific evidence
Postoperative lateral femoral cutaneous nerve block	Lack of procedure-specific evidence
Paravertebral block	Lack of procedure-specific evidence
Lumbar plexus block	Procedure-specific evidence, but side effects
LIA adjuncts to local anaesthetics	Inconsistent procedure-specific evidence
LIA in combination with other blocks	Inconsistent procedure-specific evidence
Continuous LIA	Lack of procedure-specific evidence and potential side effects
Intrathecal drugs	
Intrathecal dexmedetomidine	Limited procedure-specific evidence
Intrathecal oxytocin	Lack of procedure-specific evidence
Systemic drugs	
Methylprednisolone	Limited procedure-specific evidence
Postoperative dexamethasone	Inconsistent procedure-specific evidence
Duloxetine	Limited procedure-specific evidence
IV dexmedetomidine	Lack of procedure-specific evidence
Melatonin	Lack of procedure-specific evidence
Gabapentinoids	Inconsistent evidence and side effects
Surgical techniques	
Super-PATH approach	Lack of procedure-specific evidence
Direct anterior approach	Lack of procedure-specific evidence
3D immersive reality	Lack of procedure-specific evidence

LIA, local infiltration analgesia; PENG, pericapsular nerve group; super-PATH, supercapsular percutaneously-assisted total hip.

Overall PROSPECT recommendations table

Overall recommendations for procedure-specific pain management in patients undergoing primary THA			
		Level of evidence	Strength of recommendation
Preoperative and Intraoperative	Paracetamol combined with NSAIDs or COX-2-selective inhibitors administered either preoperatively or intraoperatively, unless contraindicated	N/A	N/A
	Dexamethasone up to 10 mg, IV	High	Strong
	<i>Local/regional analgesia techniques:</i>		
	• Single shot supra-FICB • OR single shot PENG block	High	Strong
	• LIA if regional blocks are not possible or contraindicated	High	Strong
	Intrathecal morphine 0.1 mg may be considered, if the patient has received spinal anaesthesia for the surgery and the procedure is performed in inpatient setting	High	Strong
Postoperative	Paracetamol combined with NSAIDs or COX-2-selective inhibitors administered as scheduled, unless contraindicated	N/A	N/A
	Opioid for rescue	N/A	N/A

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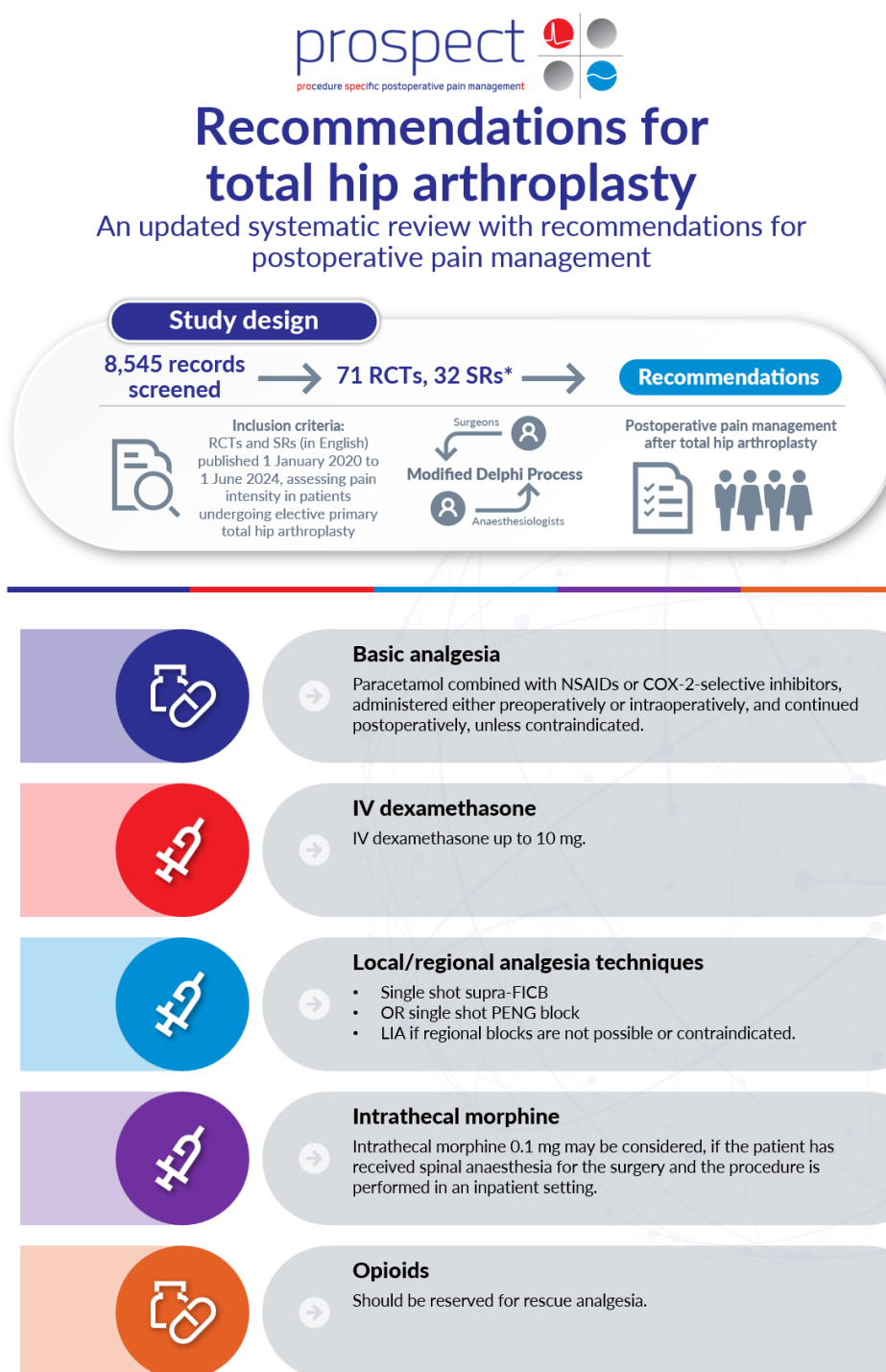
PROSPECT publication

Carella M, Bugada D, Van de Velde M, Beloeil H, Albrecht E, Lavand'homme P, Raeder J, Joshi GP, on behalf of the PROSPECT Working Group of the European Society of Regional Anaesthesia and Pain Therapy (ESRA).

PROSPECT guideline for total hip arthroplasty: updated systematic review and procedure-specific postoperative pain management recommendations.

[Anaesthesia. 2026 Jul 20. doi: 10.1111/anae.70299. Online ahead of print.](#)

PROSPECT recommendations for THA – [Infographic](#)



Carella M, et al. PROSPECT guideline for total hip arthroplasty: updated systematic review and procedure-specific postoperative pain management recommendations. Anaesthesia 2026 Jul 20. doi: 10.1111/anae.70299. Online ahead of print.

*This systematic review builds on the previous review, which included data from 129 studies.

COX, cyclooxygenase; IV, intravenous; LIA, local infiltration analgesia; NSAID, non-steroidal anti-inflammatory drug; PENG, pericapsular nerve group; RCT, randomised controlled trial; SR, systematic review; supra-FICB, supra-inguinal fascia iliaca compartment block.

