

Popliteal Sciatic Nerve Block

Intraoperative teaching · CA-1

THE QUESTION

Where the evidence disagrees

This topic was selected because an evidence synthesis beats a textbook on it: the trials disagree, or the guidance has moved recently.

THE EVIDENCE

What each source contributes, and how strong it is

Study design first — a cohort and a randomised trial do not carry the same weight.

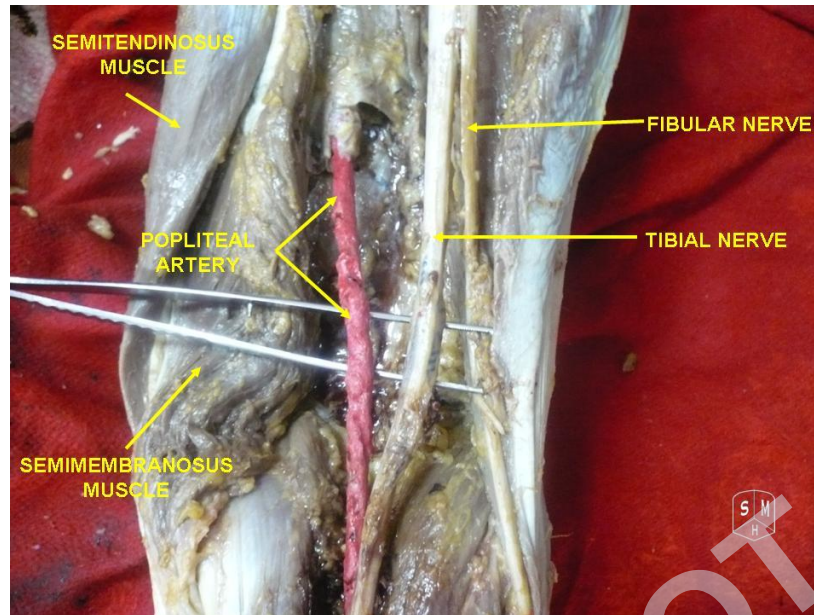
Design	Year	Journal	What it found
Review	2025	JB & JS open access	This review notes that liposomal bupivacaine is approved for popliteal fossa sciatic
Meta-analysis	2021	The Journal of foot and ankle surg	This systematic review found that adding a saphenous or ankle block to a popliteal
Randomised trial	2024	Minerva anesthesiologica	This randomized trial found that adding 200 mg magnesium sulfate to ropivacaine for
Review	2024	Journal of clinical medicine	This review states that for a sciatic nerve block at the popliteal fossa using
Meta-analysis	2019	BMC musculoskeletal disorders	This meta-analysis found that continuous popliteal sciatic nerve block lowers VAS
Randomised trial	2024	European journal of anaesthesiolog	This randomised trial found that for forefoot surgery using 30 ml of ropivacaine

6 resolved citations behind this deck; every point above traces to one of them.

ANATOMY

Block proximal to the split, or block both divisions

Popliteal fossa dissection: tibial and common fibular nerves shown separated, with the popliteal artery medial, bounded by semitendinosus and semimembranosus.



*Tibial and fibular nerve, popliteal fossa dissection — Anatomist90 · https://commons.wikimedia.org/wiki/File:Tibial_and_fibular_nerve.jpg
Anatomist90 · CC-BY-SA-3.0 · https://commons.wikimedia.org/wiki/File:Tibial_and_fibular_nerve.jpg*

Below the bifurcation a single injection reaches one division only — which is how a block that looks technically successful still leaves a foot with sensation.

WHERE THE GUIDANCE SITS

What the guidelines and pooled evidence say

2 findings, each on the slide that follows.

This systematic review found that adding a saphenous or ankle block to a popliteal

This systematic review found that adding a saphenous or ankle block to a popliteal nerve block when using a calf tourniquet may increase overall...

BMC MUSCULOSKELETAL DISORDERS 2019

This meta-analysis found that continuous popliteal sciatic nerve block lowers VAS

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Meta-analysis · The Journal of foot and ankle surg

This systematic review found that adding a saphenous or ankle block to a popliteal nerve block when using a calf tourniquet may increase overall block effectiveness, and combined peripheral nerve blocks reduce postoperative opioid consumption compared to single-site blocks.

Combination Lower Extremity Nerve Blocks and Their Effect on Postoperative Pain and Opioid Consumption: A Systematic Review, The Journal of foot and ankle surgery : official publication of the American College of Foot and Ankle Surgeons 2021 · PMID 33168443

WHERE THE GUIDANCE SITS

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Meta-analysis · BMC musculoskeletal disorders

This meta-analysis found that continuous popliteal sciatic nerve block lowers VAS pain scores at 24 and 48 hours postoperatively compared to single-injection, but carries a 13.9% risk of catheter drug leakage.

The efficacy and safety of continuous versus single-injection popliteal sciatic nerve block in outpatient foot and ankle surgery: a systematic review and meta-analysis, BMC musculoskeletal disorders 2019 · PMID 31601208

WHAT THE TRIALS FOUND

Where randomised evidence moved the question

2 findings, each on the slide that follows.

MINERVA ANESTESIOLOGICA 2024

This randomized trial found that adding 200 mg magnesium sulfate to ropivacaine for

This randomized trial found that adding 200 mg magnesium sulfate to ropivacaine for popliteal sciatic nerve block in bunion correction surgery...

EUROPEAN JOURNAL OF ANAESTHESIOLOGY 2024

This randomised trial found that for forefoot surgery using 30 ml of ropivacaine

This randomised trial found that for forefoot surgery using 30 ml of ropivacaine 0.5% with multimodal analgesia, a sciatic nerve block at the...

WHAT THE TRIALS FOUND

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Randomised trial · Minerva anestesiologica

This randomized trial found that adding 200 mg magnesium sulfate to ropivacaine for popliteal sciatic nerve block in bunion correction surgery shortened sensory block onset to 9.2 minutes and prolonged duration to 18.2 hours compared to saline.

Ropivacaine and magnesium sulfate in sciatic nerve block at the popliteal level: randomized double-blind study, Minerva anestesiologica 2024 · PMID 39480231

WHAT THE TRIALS FOUND

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Randomised trial · European journal of anaesthesiology

This randomised trial found that for forefoot surgery using 30 ml of ropivacaine 0.5% with multimodal analgesia, a sciatic nerve block at the popliteal crease does not provide a longer duration of analgesia than an ankle block.

Duration of analgesia after forefoot surgery compared between an ankle and a sciatic nerve block at the popliteal crease: A randomised controlled single-blinded trial, European journal of anaesthesiology 2024 · PMID 37972929

IN PRACTICE

What the cohorts and reviews add

2 findings, each on the slide that follows.

JB & JS OPEN ACCESS 2025

This review notes that liposomal bupivacaine is approved for popliteal fossa sciatic

This review notes that liposomal bupivacaine is approved for popliteal fossa sciatic nerve blocks and may prolong analgesia without a postoperative...

JOURNAL OF CLINICAL MEDICINE 2024

This review states that for a sciatic nerve block at the popliteal fossa using

This review states that for a sciatic nerve block at the popliteal fossa using Exparel™, the injection is usually preceded by plain bupivacaine to...

IN PRACTICE

This review notes that liposomal bupivacaine is approved for popliteal fossa sciatic

Review · JB & JS open access

This review notes that liposomal bupivacaine is approved for popliteal fossa sciatic nerve blocks and may prolong analgesia without a postoperative catheter, despite mixed clinical trial results compared to unencapsulated bupivacaine.

Practical Considerations for Liposomal Bupivacaine Use in Orthopaedic Surgery: A Clinical and Economic Analysis, JB & JS open access 2025 · PMID 40948568

IN PRACTICE

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Review · Journal of clinical medicine

This review states that for a sciatic nerve block at the popliteal fossa using Exparel™, the injection is usually preceded by plain bupivacaine to initiate analgesia before enough bupivacaine is released from the DepoFoam to be pharmacodynamically effective.

Nanotechnology for Pain Management, Journal of clinical medicine 2024 · PMID 38731140

INDICATIONS

When this is the right block

AMBULATORY CONTINUOUS POPLITEAL SCIATIC BLOCKADE RCT, J CLIN ANESTH 2024

Elective foot and ankle surgery

In a randomised non-inferiority trial, ambulatory continuous popliteal sciatic blockade gave an overall benefit of analgesia score 1.9 points lower than standard care over the first three postoperative days and cut opioid consumption by 8.7 oral morphine milligram equivalents over five days.

CONTINUOUS VERSUS SINGLE-INJECTION POPLITEAL SCIATIC BLOCK META-ANALYSIS, BMC MUSCULOSKELET DISORD 2019

When the analgesia has to last past the first night

Across five randomised trials, a continuous popliteal sciatic catheter gave lower visual analogue scores at 24 and 48 hours than a single injection in outpatient foot and ankle surgery, with no neuropathic symptoms or infections reported in either arm.

REBOUND PAIN PREVENTION NETWORK META-ANALYSIS, J CLIN ANESTH 2024

Where the surgery justifies a dense block and you plan for the rebound

Rebound pain on block resolution is the predictable cost of a dense sciatic block. In a network meta-analysis of seven trials and 561 patients, intravenous dexamethasone ranked first for preventing it (OR 0.13, 95% CI 0.07-0.23), with perineural dexamethasone also better than control.

CONTRAINDICATIONS

When it is not

ASRA LOCAL ANESTHETIC SYSTEMIC TOXICITY CHECKLIST, 2020 VERSION, REG ANESTH PAIN MED 2021

A total dose that ignores the other blocks done that day

A popliteal block is often the second or third injection in a lower-limb plan, and the doses add. ASRA updated its local anaesthetic systemic toxicity checklist in 2020 in response to simulation studies and user feedback; the total dose, not the individual block, is what determines whether that checklist gets used.

REGIONAL ANESTHESIA IN PATIENTS WITH PREEXISTING NEUROLOGIC DISEASE, REG ANESTH PAIN MED 2015

Diabetic polyneuropathy or another pre-existing sensorimotor deficit

The evidence that diabetic nerves are more sensitive to local anaesthetic and perhaps more susceptible to injury has strengthened, and postsurgical inflammatory neuropathy is now recognised as a separate cause of postoperative deficit. The foot most likely to need this block is often the one with the least neurologic reserve.

CONTINUOUS VERSUS SINGLE-INJECTION POPLITEAL SCIATIC BLOCK META-ANALYSIS, BMC MUSCULOSKELET DISORD 2019

Sending a catheter home without support for the hardware

In the pooled catheter trials the major complications were absent but the nuisance ones were not: drug leakage occurred in 26 of 187 patients (13.9%), the commonest pump-and-catheter problem reported. A patient who cannot manage or reach help for that should not go home with one.

ASRA ANTITHROMBOTIC GUIDELINES, 5TH EDITION, REG ANESTH PAIN MED 2025

Antithrombotic therapy still inside the ASRA interval

ASRA's fifth edition proposes conservative interruption times before neural blockade and now describes doses as low or high rather than prophylactic or therapeutic, because the same dose serves different indications in different patients. Check the interval before positioning.

PEARLS

What experience adds

ULTRASOUND-GUIDED SUBPARANEURAL POPLITEAL SCIATIC BLOCK, REG ANESTH PAIN MED 2021

The anatomy inside the trunk explains the spread

The tibial and common peroneal nerves within the sciatic trunk are separated centrally by the Compton-Cruveilhier septum and each carries its own paraneural sheath, which is why a subparaneural injection at or just below the divergence promotes proximal spread to the internal aspect of the trunk.

PROPHYLACTIC DEXAMETHASONE FOR REBOUND PAIN META-ANALYSIS, BR J ANAESTH 2024

Dexamethasone by either route reduces rebound pain

Across seven randomised trials in 574 patients, prophylactic dexamethasone reduced the incidence of rebound pain after peripheral nerve block with an odds ratio of 0.16, and both intravenous and perineural administration showed a significant reduction.

Tell the patient when it will wear off, in hours and out loud

Give a number and a plan: when to take the first oral dose rather than waiting for pain to arrive, and who to call. The block is the easy part of this; the handover about its ending is the part that gets skipped.

IN THE ROOM

What this changes about the next case

Colour is the strength of the evidence behind each step, not the urgency.

- 1 This systematic review found that adding a saphenous or ankle block to a popliteal nerve block when using a calf tourniquet may increase overall block effectiveness, and combined peripheral nerve blocks reduce postoperative opioid consumption compared to single-site blocks.
- 2 This meta-analysis found that continuous popliteal sciatic nerve block lowers VAS pain scores at 24 and 48 hours postoperatively compared to single-injection, but carries a 13.9% risk of catheter drug leakage.
- 3 This randomized trial found that adding 200 mg magnesium sulfate to ropivacaine for popliteal sciatic nerve block in bunion correction surgery shortened sensory block onset to 9.2 minutes and prolonged duration to 18.2 hours compared to saline.
- 4 This randomised trial found that for forefoot surgery using 30 ml of ropivacaine 0.5% with multimodal analgesia, a sciatic nerve block at the popliteal crease does not provide a longer duration of analgesia than an ankle block.
- 5 This review notes that liposomal bupivacaine is approved for popliteal fossa sciatic nerve blocks and may prolong analgesia without a postoperative catheter, despite mixed clinical trial results compared to unencapsulated bupivacaine.

KEY TAKEAWAYS

What to carry into the next case

This review notes that liposomal bupivacaine is approved for popliteal fossa sciatic

JB & JS open access 2025

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This randomized trial found that adding 200 mg magnesium sulfate to ropivacaine for

Minerva anestesiologica 2024

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Journal of clinical medicine 2024

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QUESTIONS I'LL ASK YOU IN THE ROOM

1. Walk me through your setup for this before we start.
2. What are you watching on the monitor that would tell you this is going wrong?
3. What is your first move if it does?
4. What would you want ready in the room before induction?

BOARD QUESTIONS

1. Patients having tibial, foot and ankle surgery received an ultrasound-guided popliteal sciatic block in which the needle tip was positioned to give either circumferential extraneural spread or subparaneural spread, with the same mepivacaine dose. What did the trial find for onset and for duration of sensory block?
 - A. Onset was faster with the subparaneural injection (about 11 versus 18 minutes) and sensory block lasted longer
 - B. Onset was faster with the circumferential extraneural injection (about 11 versus 18 minutes) and sensory block lasted longer
 - C. Onset times were the same, but the subparaneural injection gave a longer sensory block
 - D. Onset was faster with the subparaneural injection, but sensory block was shorter
2. One hundred patients were randomised to a single-injection or a triple-injection subparaneural popliteal sciatic block, with an identical 15 ml of local anaesthetic in both. Give the success rates and total anaesthesia-related times, then say which technique you would teach a junior and why.
3. Sixty-eight patients received an ultrasound-guided subparaneural popliteal sciatic block with 30 ml of local anaesthetic either at the neural bifurcation or proximal to it, at the common sciatic trunk. The success rates were 85% to 88% and total anaesthesia-related times 23.4 to 26.0 minutes, with no significant difference between them. Why should you not report this trial as showing the two levels are equivalent?

ANSWER KEY

1. A. Onset was faster with the subparaneural injection (about 11 versus 18 minutes) and sensory block lasted longer

Sensory duration was about 397 minutes subparaneural against 265 minutes extraneural, and the success rate rose too. The trial randomised needle-tip position and measured the difference; it did not test why, so the usual account — that the paraneural sheath holds local anaesthetic against the nerve instead of letting it disperse — is an explanation offered for the finding rather than a mechanism this study demonstrated. Note that unintentional intraepineural injection occurred in 8% of patients overall: whatever is gained by working at that depth comes with a narrower margin.

Choquet O et al., Subparaneural versus circumferential extraneural injection at the bifurcation level in ultrasound-guided popliteal sciatic nerve blocks: a prospective, randomized, double-blind study, *Reg Anesth Pain Med* 2014 · PMID 24918330

2. Both techniques succeeded in 92% of patients, and total anaesthesia-related time — performance plus onset — was 17.1 to 19.7 minutes in both. The triple-injection technique had a shorter onset (12.5 versus 15.8 minutes) but needed three needle passes instead of one and a longer needling time. I would teach the single injection: for the same success rate and the same total time to a usable block, it involves a third of the needle passes and a shorter needling time. Be careful how you argue that, though. This trial found procedural discomfort and the incidence of paraesthesia similar between the groups, so fewer passes is an argument from the count of passes and from needling time, not from any harm this study demonstrated. And the reason usually given for expecting one injection to suffice — that once local anaesthetic is under the paraneurium the sheath itself distributes it circumferentially — is the authors' stated hypothesis going in, not something the trial measured.

The endpoint that matters is total anaesthesia-related time, not onset time. A technique that starts working three minutes sooner but takes longer to perform has not saved anyone anything.

Tiyaprasertkul W et al., A Randomized Comparison Between Single- and Triple-Injection Subparaneural Popliteal Sciatic Nerve Block, *Reg Anesth Pain Med* 2015 · PMID 25923820

3. Because the trial was too small to exclude a difference that would matter. The authors say so themselves: on the 95% confidence intervals they could not rule out an intergroup difference of up to 19% in success rate and up to 7.83 minutes in total anaesthesia-related time. A 19% difference in success is clinically large, so "no significant difference" here means the trial did not detect one, not that one does not exist. Sonographic neural swelling was also seen in five subjects across the two groups, and two patients had residual numbness at one week which had resolved by one month.

Absence of a significant difference in a 68-patient trial is a statement about the trial's power. Read the width of the confidence interval before you call two techniques equivalent — the authors of this one did exactly that in print.

Tran QH et al., A randomized comparison between bifurcation and prebifurcation subparaneural popliteal sciatic nerve blocks, *Anesth Analg* 2013 · PMID 23492960

This review notes that liposomal bupivacaine is approved for popliteal fossa sciatic

SOURCES

[1] Practical Considerations for Liposomal Bupivacaine Use in Orthopaedic Surgery: A Clinical and Economic Analysis, JB & JS open access 2025 · PMID 40948568

[2] Combination Lower Extremity Nerve Blocks and Their Effect on Postoperative Pain and Opioid Consumption: A Systematic Review, *The Journal of foot and ankle surgery* : official publication of the American College of Foot and Ankle Surgeons 2021 · PMID 33168443

[3] Ropivacaine and magnesium sulfate in sciatic nerve block at the popliteal level: randomized double-blind study, *Minerva anestesiologica* 2024 · PMID 39480231

[4] Nanotechnology for Pain Management, *Journal of clinical medicine* 2024 · PMID 38731140

[5] The efficacy and safety of continuous versus single-injection popliteal sciatic nerve block in outpatient foot and ankle surgery: a systematic review and meta-analysis, *BMC musculoskeletal disorders* 2019 · PMID 31601208

[6] Duration of analgesia after forefoot surgery compared between an ankle and a sciatic nerve block at the popliteal crease: A randomised controlled single-blinded trial, *European journal of anaesthesiology* 2024 · PMID 37972929

[7] Ambulatory continuous popliteal sciatic blockade RCT, *J Clin Anesth* 2024 · PMID 38574504

[8] Rebound pain prevention network meta-analysis, *J Clin Anesth* 2024 · PMID 39454286

[9] ASRA Local Anesthetic Systemic Toxicity checklist, 2020 version, *Reg Anesth Pain Med* 2021 · PMID 33148630

[10] Regional anesthesia in patients with preexisting neurologic disease, *Reg Anesth Pain Med* 2015 · PMID 26115188

[11] ASRA antithrombotic guidelines, 5th edition, *Reg Anesth Pain Med* 2025 · PMID 39880411

[12] Ultrasound-guided subparaneural popliteal sciatic block, *Reg Anesth Pain Med* 2021 · PMID 33077429

[13] Prophylactic dexamethasone for rebound pain meta-analysis, *Br J Anaesth* 2024 · PMID 38501226