Intérêt de l'anesthésie loco-régionale dans le développement de la RAAC : expérience en chirurgie orthopédique

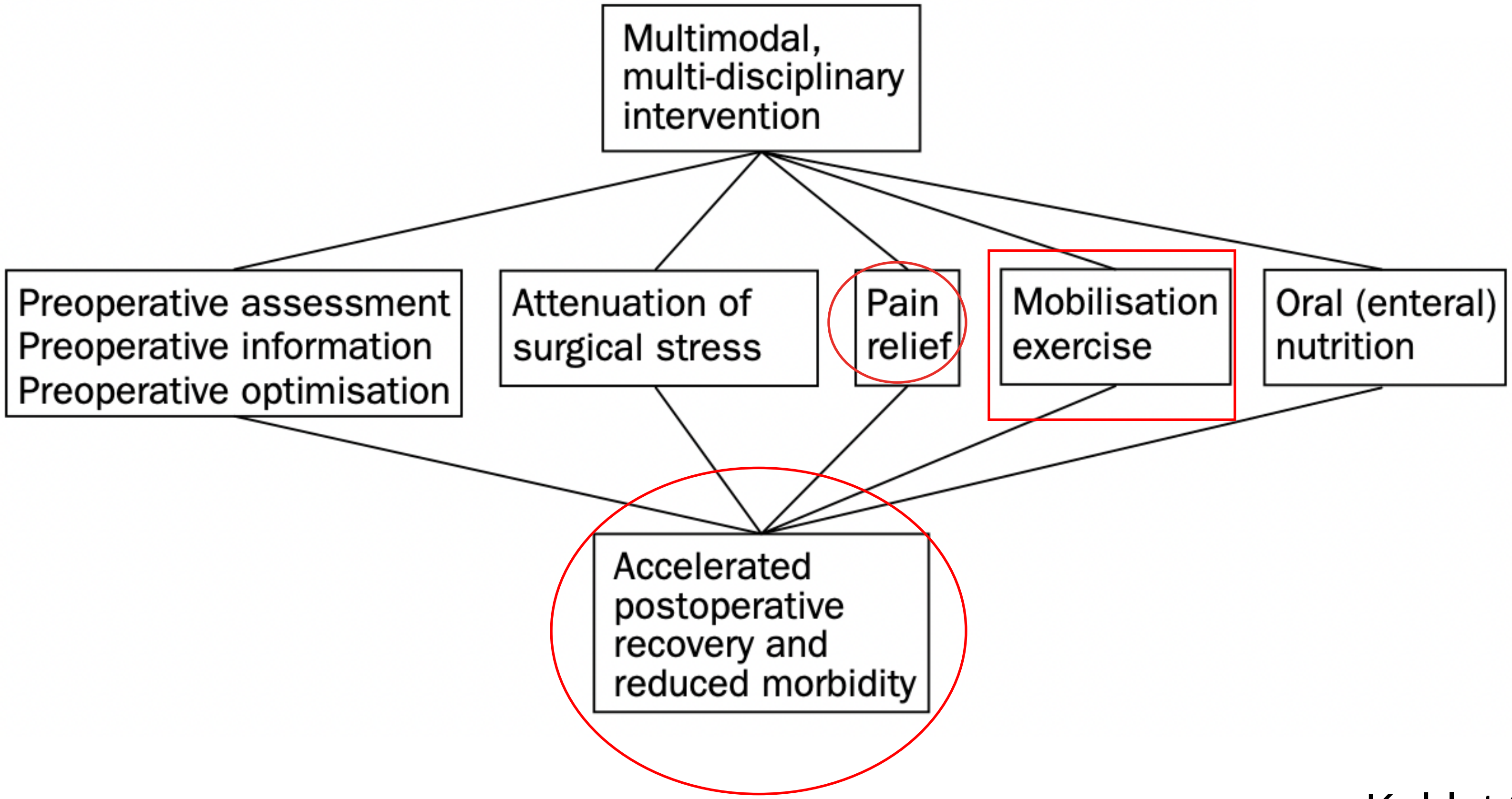
Dr Merouani Mehdi

Clinique Medipole Garonne Toulouse

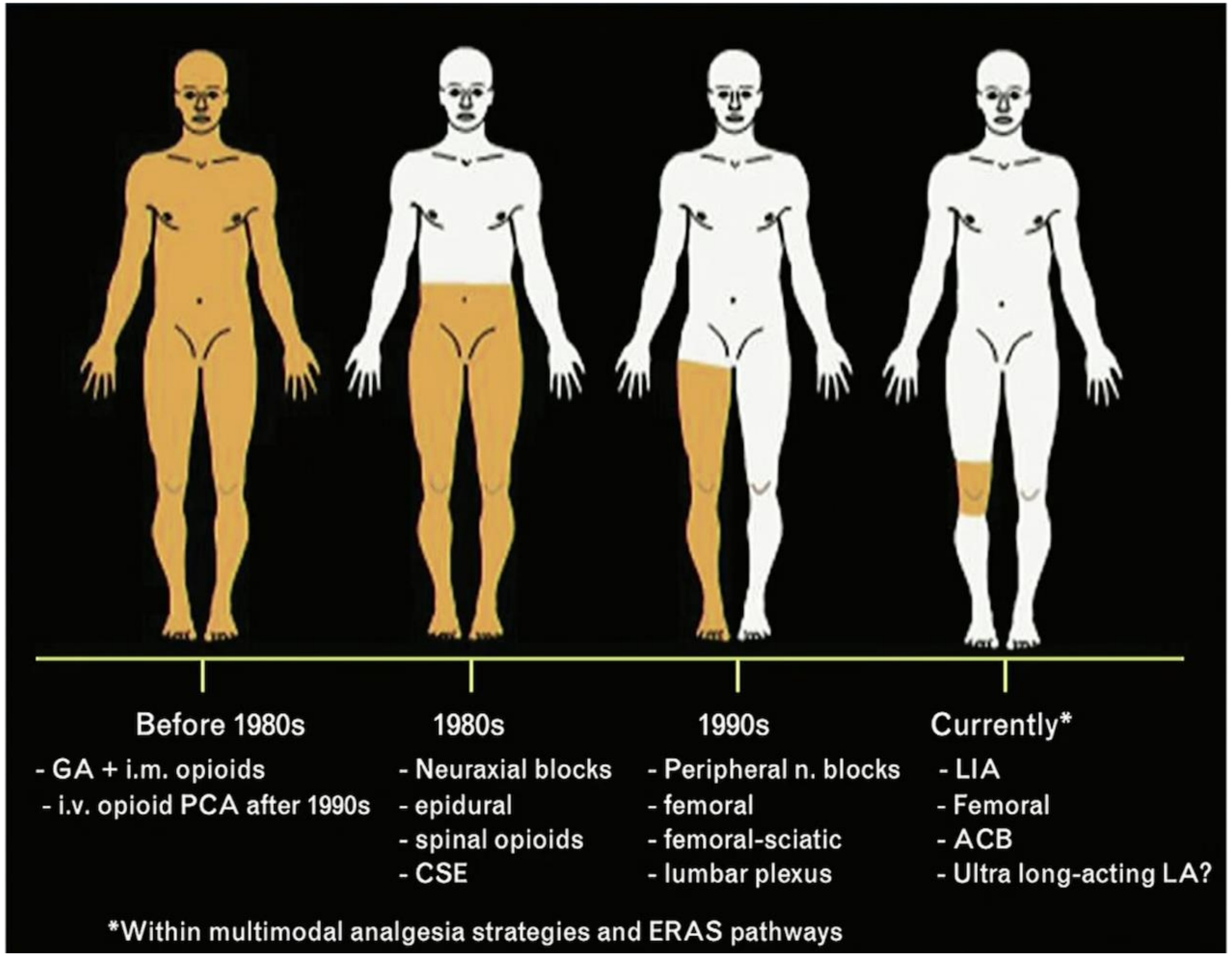
Déclaration liens d'intérêts

- aucun

THE LANCET



Kehlet 2003


Before 1980s
- GA + i.m. opioids
- i.v. opioid PCA after 1990s
1980s
- Neuraxial blocks
- epidural
- spinal opioids
- CSE
1990s
- Peripheral n. blocks
- femoral
- femoral-sciatic
- lumbar plexus
Currently*
- LIA
- Femoral
- ACB
- Ultra long-acting LA?
*Within multimodal analgesia strategies and ERAS pathways

Acta Orthopaedica 2020; 91 (1): 3–19 3

Consensus statement for perioperative care in total hip replacement and total knee replacement surgery: Enhanced Recovery After Surgery (ERAS®) Society recommendations

Thomas W WAINWRIGHT [1,2], Mike GILL [3], David A MCDONALD [4,5], Robert G MIDDLETON [1,2,6], Mike REED [7,8], Opinder SAHOTA [9,10], Piers YATES [11], and Olle LJUNGQVIST [12]

Summary and recommendations*—LIA is recommended for knee replacement but not for hip replacement within a multi-modal opioid sparing regime. Nerve block techniques provide equal analgesia; however, when compared with LIA prolonged motor blockade may limit early and safe mobilization. Nerve blocks are therefore not recommended as an essential ERAS component*

Evidence level *for LIA in knee replacement—High*

Recommendation grade*—Strong*

Wainwright 2020

Inpatient Falls after Total Knee Arthroplasty

The Role of Anesthesia Type and Peripheral Nerve Blocks

Stavros G. Memtsoudis, M.D., Ph.D., F.C.C.P., Thomas Danninger, M.D.,
Rehana Rasul, M.P.H., M.A., Jashvant Poeran, M.D., Ph.D., Philipp Gerner, B.S.,
Ottokar Stundner, M.D., Edward R. Mariano, M.D., M.A.S., Madhu Mazumdar, Ph.D., M.A., M.S.

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Table 4. Patient Demographics, Healthcare-related, Procedure-related, and Comorbidity Measure Variables for Patients with a PNB and Those without

	Block (N = 23,235)		No Block (N = 168,335)		
	N*	%*	N*	%*	*P* Value†
Patient demographics					
Age continuous*	66.3	10.55	66.4	10.37	0.167
Age category, yr					
<45	387	1.73	3,357	1.93	0.050
45–54	2,705	11.91	20,035	11.81	
55–64	6,629	28.59	47,967	28.11	
65–74	7,938	33.85	56,231	33.50	
>75	5,576	23.91	40,745	24.65	
Sex					
Male	14,498	62.56	105,826	62.65	0.818
Female	8,737	37.44	62,509	37.35	
Race					
White	19,514	82.53	126,484	73.52	<0.001
Black	1,547	6.80	12,934	7.02	
Hispanic	394	1.91	4,307	3.08	
Other	1,780	8.76	24,610	16.38	

Memtsoudis 2014

Lund University
Department of Clinical Sciences, Orthopedics
Skane University Hospital, Lund
Sweden

Swedish Knee Arthroplasty Register

THE SWEDISH KNEE ARTHROPLASTY REGISTER – ANNUAL REPORT 2014

Local infiltration analgesia - LIA

Type (%)	2011	2012	2013
None	4.1	3.3	2.4
LIA	54.5	62.8	71.7
Only catheter	8.4	6.2	3.8
LIA+catheter	32.7	27.5	21.8
Missing	0.3	0.2	0.3
Total	100	100	100

LIA > 97 %

The role of pain for early rehabilitation in fast track total knee arthroplasty

BENTE HOLM[1,2], MORTEN TANGE KRISTENSEN[1], LIS MYHRMANN[1], HENRIK HUSTED[2,3], LASSE ØSTERGAARD ANDERSEN[2,4], BILLY KRISTENSEN[2,4] & HENRIK KEHLET[2,5]

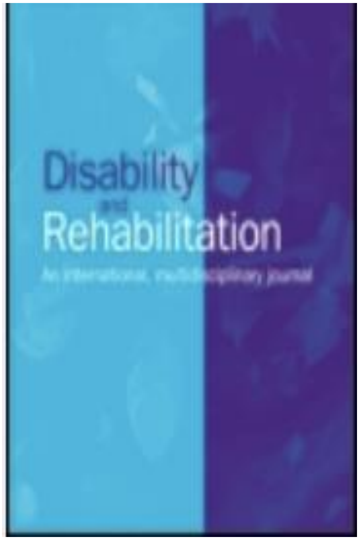


Table II. Levels of independence in three basic functions on POD 1, POD 2, and on DOD associated with pain using VAS for 100 patients with total knee arthroplasty.

Levels of independence for	POD 1 ($n = 100$)	POD 2 ($n = 94$)	DOD ($n = 100$)
assistance, highwalker			
VAS	7 (5–8)	–	–
Unable to perform function	7	–	–
Discharged after assessment	6	38	100

Values are presented as number of patients with the listed function and as median (interquartile range of 25–75%) for VAS-scores.

To conclude, our results have shown that > 90% of TKA patients are able to initiate functional recovery within 1–2 days postoperatively, and that pain has a limited role for such functional recovery in the early (~3 days) postoperative period. Future studies should evaluate the role of intensive physiotherapy after discharge to achieve a high level of functional ability with a shorter rehabilitation period and long-term follow-up of pain and function after a fast track surgery program.

Holm 2010

Effect of an intensive functional rehabilitation program on the recovery of activities of daily living after total knee arthroplasty: A multicenter, randomized, controlled trial

Ryo Tanaka [a, b, *], Takuya Hayashizaki [c], Ryoji Taniguchi [d], Jun Kobayashi [e], Takuya Umehara [f]

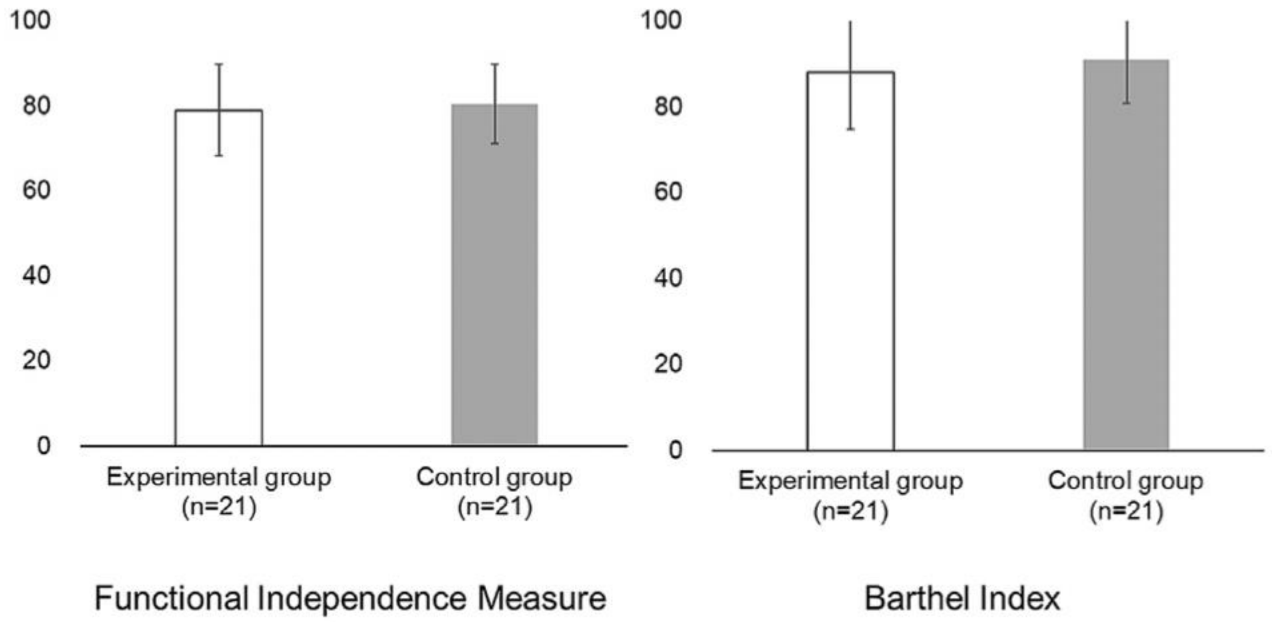


Fig. 3. The score of Functional Independence Measure and Barthel Index at 2 weeks after surgery.

Tanaka 2020

Effectiveness of physiotherapy exercise after knee arthroplasty for osteoarthritis: systematic review and meta-analysis of randomised controlled trials

Catherine J Minns Lowe, research fellow,[1] Karen L Barker, director,[2] Michael Dewey, special lecturer,[3] Catherine M Sackley, professor of physiotherapy research[1]

BMJ

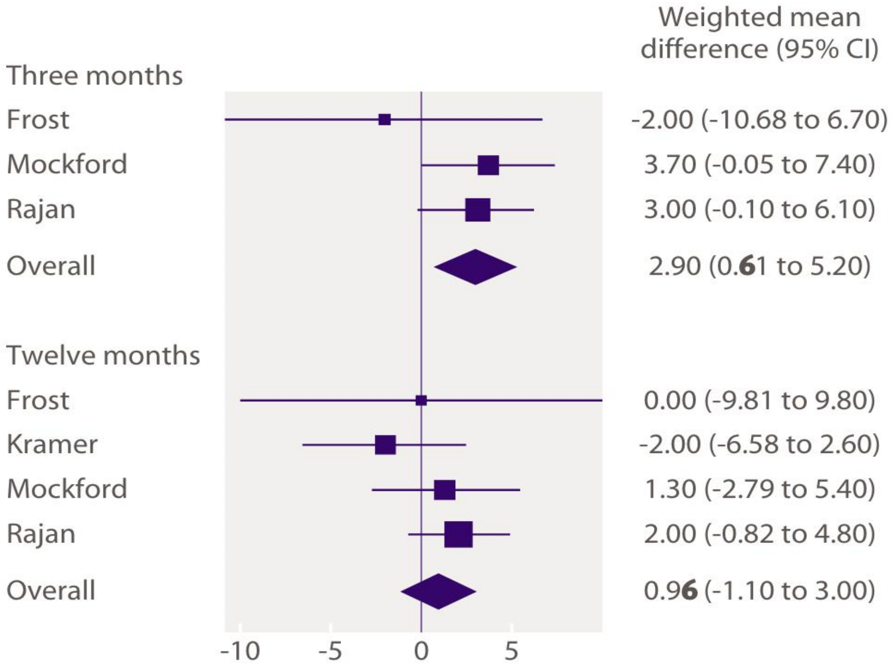


Fig 4 | Forest plot of weighted mean differences with confidence intervals for range of motion (in degrees)

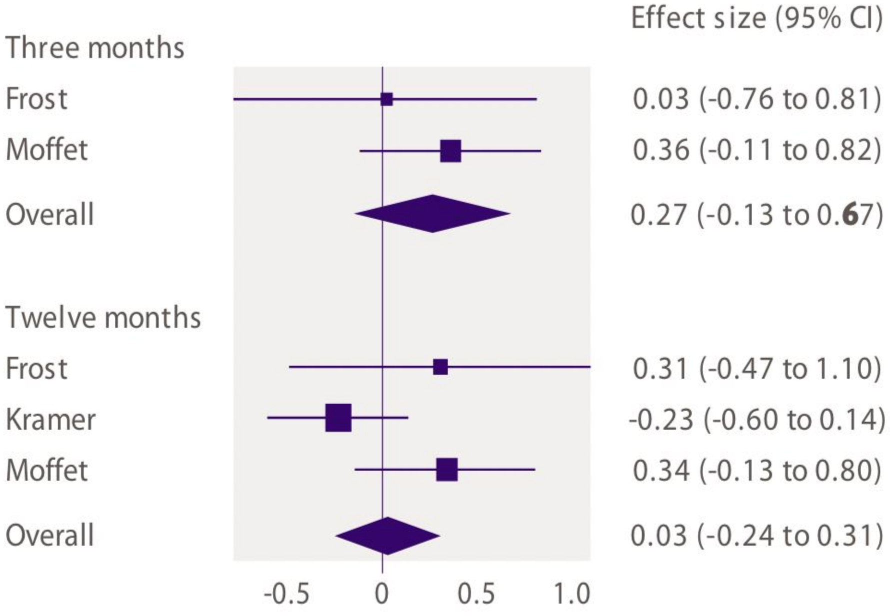


Fig 3 | Forest plot of standardised effect sizes with confidence intervals for walking

Minns Lowe 2007

Somatic and Psychologic Predictors of Long-term Unfavorable Outcome After Surgical Intervention

Madelon L. Peters, PhD, Micha Sommer, MD,† Janneke M. de Rijke, PhD,†
Fons Kessels, MD, MSc,‡ Erik Heineman, MD, PhD,§ Jacob Patijn, MD, PhD,†
Marco A. E. Marcus, MD, PhD,† Johan W. S. Vlaeyen, PhD,* and Maarten van Kleef, MD, PhD†*

ANNALS OF SURGERY
A Monthly Review of Surgical Science Since 1885

TABLE 2. The Association of Step 3 and 4 Predictor Variables With Outcome Variables Increased Pain at 6-Month Follow-up, Increased Functional Limitations at 6-Month Follow-up and Poor Global Recovery

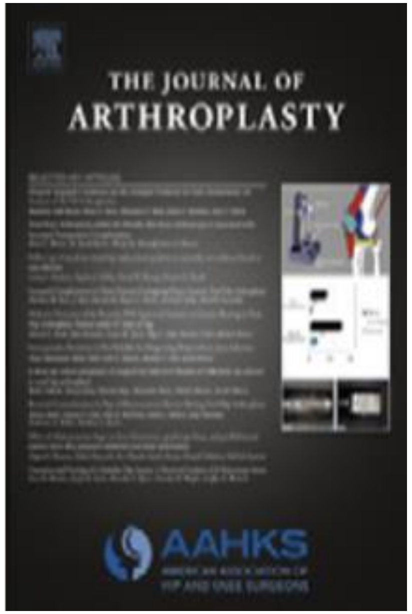
		Increased Pain at Follow-up		Increased Functional Limitations at Follow-up		Poor Global Recovery	
Independent Variable	**n**	**OR (95% CI)**	***P***	**OR (95% CI)**	***P***	**OR (95% CI)**	***P***
Preop. pain							
No	274	1.00		1.00		1.00	
Yes	351	0.32 (0.17–0.60)	0.001	NE		1.90 (1.21–2.97)	0.01
Duration of surgery							
<3 hr	545	1.00		1.00		1.00	
≥3 hr	80	2.00 (1.01–3.97)	0.05	4.24 (2.33–7.71)	0.001	2.45 (1.37–4.39)	0.01
Pain on day 4							
Pain <40	551	1.00		1.00		1.00	
Pain ≥40	74	3.21 (1.64–6.30)	0.001	1.87 (1.02–3.41)	0.04	2.61 (1.47–4.62)	0.001
ASA status							
ASA grade I	262	1.00		1.00		1.00	
ASA grade II	274	NE		1.38 (0.80–2.38)	0.24	NE	
ASA grade III	89	NE		2.40 (1.17–4.90)	0.02	NE	
Long-term fear							
Low (<10)	304	1.00		1.00		1.00	
High (≥10)	321	1.90 (1.08–3.33)	0.03	NE		1.98 (1.34–2.94)	0.001
Optimism							
Low (<28)	292	1.00		1.00		1.00	
High (≥28)	333	NE		NE		0.60 (0.41–0.87)	0.01

Odds ratios (ORs) and the 95% confidence interval for the variables in the final model are given.
NE indicates variable not entered in the equation.

Peters 2007

Patient Dissatisfaction After Primary Total Joint Arthroplasty: The Patient Perspective

Mohamad J. Halawi, MD [a, *], Walter Jongbloed [b], Samuel Baron [b], Lawrence Savoy
Vincent J. Williams, MD [a], Mark P. Cote, DPT [a]



Reasons for Dissatisfaction After Total Hip Arthroplasty.

Reason for Dissatisfaction	N (%)
Persistent pain	14 (41%)
Functional limitation	12 (35%)
Surgical Complications/reoperation	4 (12%)
Staff/quality of care issues	2 (6%)
Slow recovery	2 (6%)

Reasons for Patient Dissatisfaction After Total Knee Arthroplasty.

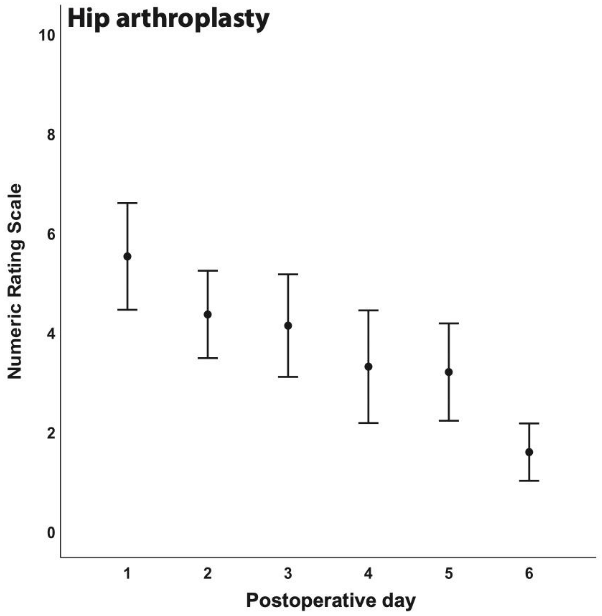
Reason for Dissatisfaction	N (%)
Persistent pain	19 (41%)
Functional limitation	12 (26%)
Surgical complications/reoperation	8 (17%)
Staff/quality of care concerns	5 (11%)
Unmet expectations	2 (4%)

Halawi 2019

Using postoperative pain trajectories to define the role of regional analgesia in personalised pain medicine

E. R. Mariano,[1,2] **K. El-Boghdadly**[3,4] and **B. M. Ilfeld**[5,6]

Anaesthesia
Association of Anaesthetists



Mariano 2021

Is Local Infiltration Analgesia Superior to Peripheral Nerve Blockade for Pain Management After THA: A Network Meta-analysis

José H. Jiménez-Almonte MD, Cody C. Wyles BS, Saranya P. Wyles BS,
German A. Norambuena-Morales MD, Pedro J. Báez BS,
Mohammad H. Murad MD, MPH, Rafael J. Sierra MD

Clinical Orthopaedics and Related Research®
A Publication of The Association of Bone and Joint Surgeons®

Conclusions Using the novel statistical network meta-analysis approach, we found no differences between local infiltration analgesia and peripheral nerve blocks in terms of analgesia or opioid consumption 24 hours after THA;

Jiménez Almonte 2016

The Pericapsular Nerve Group (PENG) block combined with Local Infiltration Analgesia (LIA) compared to placebo and LIA in hip arthroplasty surgery: a multi-center double-blinded randomized-controlled trial

D.-Yin Lin[1,2*†], Brigid Brown[1,2†], Craig Morrison[1,2], Nikolai S. Fraser[1], Cheryl S. L. Chooi[1], Matthew G. Cehic[3], David H. McLeod[1], Michael D. Henningsen[3], Nikolina Sladojevic[1], Hidde M. Kroon[4,5] and Ruurd L. Jaarsma

BMC Anesthesiology

Table 2 Postoperative pain and motor outcomes

	Sham (*n* = 30)	PENG (*n* = 30)	*P*-value
Maximum postoperative pain score (NRS) in Recovery Unit (Day 0), n (%)[a]			
None (0)	6 (20)	14 (47)	**0.03**
Mild (1–4)	14 (47)	14 (47)	
Moderate (5–7)	9 (30)	2 (6)	
Severe (8–10)	1 (3)	0 (0)	

Table 5 Postoperative opiate use

	Sham (*n* = 30)	PENG (*n* = 30)	*P*-value
Postoperative opiate use in morphine equivalents (mg), median (IQR)[a]			
Day 0	30 (18.9–73.0)	30 (8.0–57.5)	0.31
Day 1	49 (21.0–93.3)	46 (15.0–73.2)	0.41
Day 2	30 (0–47)	8 (0–45.0)	0.24
Day 3	0 (0–15)	0 (0–8.0)	0.81
Total	122 (56.5–232.5)	97.5 (30.5–164.3)	0.23

Abbreviations: *PENG* Pericapsular nerve group block, *mg* Milligrams, *IQR* Interquartile range

Lin 2022

Obturator nerve block does not provide analgesic benefits in total hip arthroplasty under multimodal analgesic regimen: a randomized controlled trial

Philippe Marty,[1] Clement Chassery,[1] Olivier Rontes,[1] Corine Vuillaume,[1] Bertrand Basset,[1] Mehdi Merouani,[1] Constance Marquis,[1] Anne Delussy,[1] Marie-Claude Delbos,[1] Fabrice Ferre ,[2] Benoit Bataille,[3] Girish Joshi,[4] Alain Delbos[1]

Regional & Pain Anesthesia Medicine

Table 3 Pain scores in the two groups

	Obturator NB group (n=30)	Placebo group (n=30)	P value*†
Median VRS at PACU arrival (IQR)	3 (0, 5)	0 (0, 4)	0.1
Median VRS max in PACU (IQR)	5 (4, 7)	4.5 (1, 6)	0.06
Median VRS at H0 (IQR)	0 (0, 0)	0 (0, 2)	0.03
Median VRS at H6 (IQR)	0 (0, 0)	0 (0, 1)	0.31
Median VRS at H12 (IQR)	0 (0, 0)	0 (0, 0)	0.86
Median VRS at H18 (IQR)	0 (0, 0)	0 (0, 1)	0.43
Median VRS at H24 (IQR)	0 (0, 2)	0 (0, 3)	0.93

Marty 2021

Using postoperative pain trajectories to define the role of regional analgesia in personalised pain medicine

E. R. Mariano,[1,2] K. El-Boghdadly[3,4] and B. M. Ilfeld[5,6]

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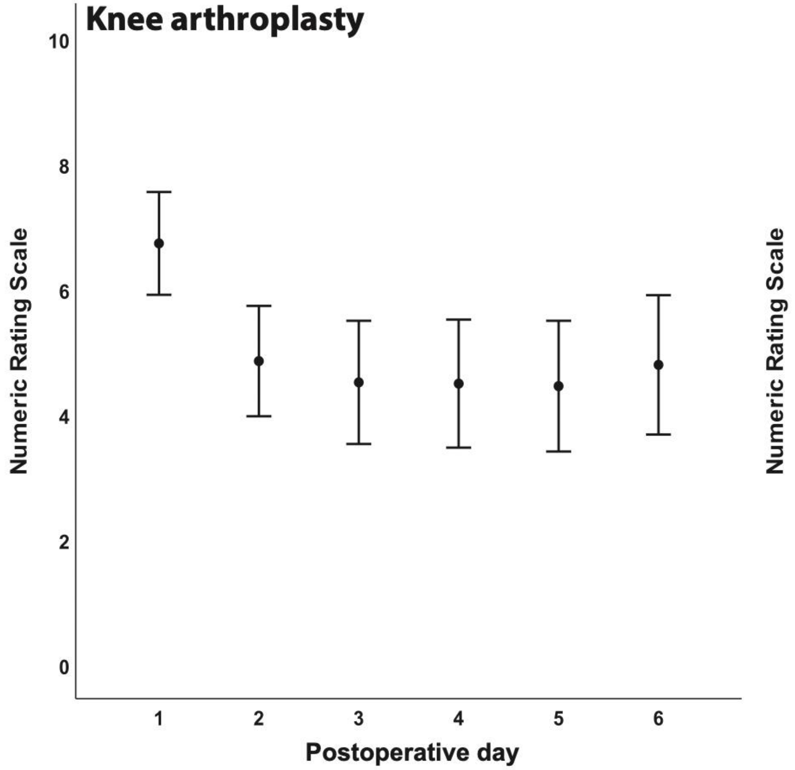

Mariano 2021

Pain Management Modalities after Total Knee Arthroplasty: A Network Meta-analysis of 170 Randomized Controlled Trials

Abdullah Sulieman Terkawi, M.D.; Dimitris Mavridis, Ph.D.; Daniel I. Sessler, M.D.; Megan S. Nunemaker, M.S.L.S.; Khaled S. Doais, M.D.; Rayan Sulieman Terkawi, M.D.; Yazzed Sulieman Terkawi, M.S.; Maria Petropoulou, M.Sc.; Edward C. Nemergut, M.D.

ANESTHESIOLOGY
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Conclusions: Blocking multiple nerves was preferable to blocking any single nerve, periarticular infiltration, or epidural analgesia. The combination of femoral and sciatic nerve block appears to be the overall best approach. Rehabilitation parameters remain markedly understudied. (ANESTHESIOLOGY 2017; 126:923-37)

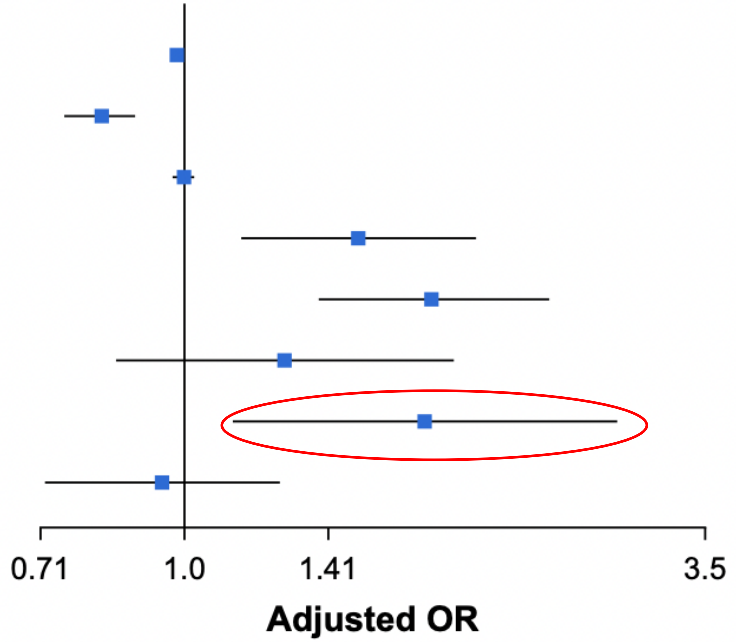
Terkawi 2017

Factors associated with rebound pain after peripheral nerve block for ambulatory surgery

Garrett S. Barry[1], Jonathan G. Bailey[1], Joel Sardinha[1,2], Paul Brousseau[1] and Vishal Uppal[1,*]

BJA

Variable	Reference category	OR	95% CI	*P*-value
Age (per year)	—	0.980	0.972–0.988	<0.001
Age (per decade)*	—	0.817	0.753–0.886	<0.001
BMI (per kg m^{-2})	—	0.997	0.975–1.020	0.811
Gender (female)	Male	1.520	1.146–2.015	0.004
Bone surgery	Soft tissue	1.823	1.384–2.402	<0.001
General anaesthesia	No GA	1.272	0.845–1.914	0.250
Dexamethasone (absence)	Dexamethasone	1.784	1.123–2.833	0.014
Postoperative NSAID use	No postoperative NSAID	0.947	0.717–1.250	0.700



Barry 2021

Perineural Versus Systemic Dexamethasone in Front-Foot Surgery Under Ankle Block

A Randomized Double-Blind Study

Philippe Marty, MD, Olivier Rontes, MD,* Clément Chassery, MD,* Corine Vuillaume, MD,* Bertrand Basset, MD,* Mehdi Merouani, MD,* Constance Marquis, MD,* Benoit Bataille, MD,† Martine Chaubard, MD,* Marie Claude Mailles, MD,* Fabrice Ferré, MD,* and Alain Delbos, MD**

Regional Anesthesia & Pain Medicine

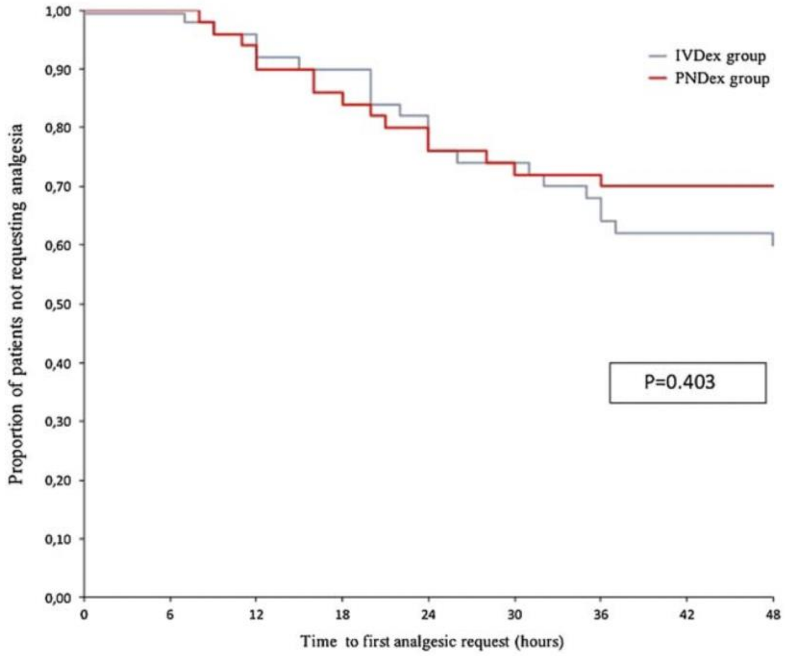


FIGURE 2. Kaplan-Meier survival plot.

Marty 2018

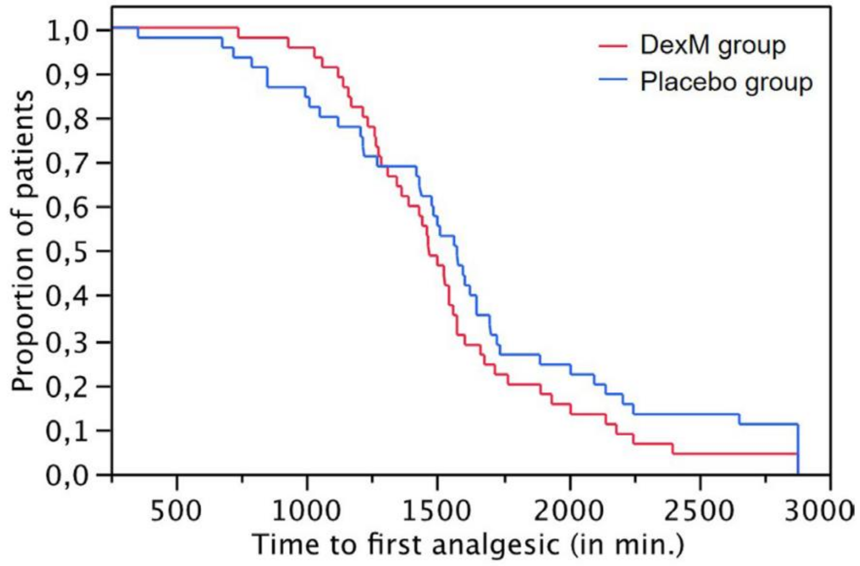
Regional Anesthesia & Pain Medicine

Total knee arthroplasty under quadruple nerve block with ropivacaine 0.32%: effect of addition of intravenous dexmedetomidine to intravenous dexamethasone on analgesic duration

Clement Chassery,[1] Philippe Marty,[1] Olivier Rontes,[1] Martine Chaubard,[1] Corine Vuillaume,[1] Bertrand Basset,[1] Mehdi Merouani,[1] Constance Marquis,[1] Anne De Lussy,[1] Marie-Claude Delbos,[1] Julie Casalprim,[1] Benoit Bataille,[2] Cecile Naudin,[3] Fabrice Ferre,[4] Alain Delbos[1]

Table 2 Pain management

	Placebo group (n=45)	DexM group (n=45)	P value
Cumulative oral oxycodone at H24 (mg)	10 (0–15)	10 (7–20)	0.26
Cumulative oral oxycodone consumption at H48 (mg)	20 (10–30)	30 (20–40)	0.14
No need for oxycodone	5 (11.1)	2 (4.4)	0.24
Postoperative additional block	2 (4.4)	3 (6.7)	0.65



Chassery 2020

Combined proximal or distal nerve blocks for postoperative analgesia after total knee arthroplasty: a randomised controlled trial

Philippe Marty[1,*], Clément Chassery[1], Olivier Rontes[1], Corine Vuillaume[1], Bertrand Basset[1], Mehdi Merouani[1], Constance Marquis[1], Anne De Lussy[1], Fabrice Ferré[2], Cécile Naudin[3], Girish P. Joshi[4] and Alain Delbos[1]

BJA

Table 2 Opioid consumption, pain scores, and need for rescue blocks in the distal and proximal nerve block groups. Values are given as median [inter-quartile range] or *n* (%). *P-values compare distal *vs* proximal groups. †Mann–Whitney *U*-test used to compare mean ranks. H0, arrival of the patient in the postanaesthesia care unit; OME, oral morphine equivalent; VRS, verbal rating score.

	All patients (*n*=90)	Distal group (*n*=45)	Proximal group (*n*=45)	P-value*,†
Cumulative OME consumption				
Cumulative OME H0–H48, mg	30 [20–66]	33 [18–78]	30 [22–51]	0.29
Cumulative OME H0–H24, mg	15 [0–36]	30 [13–59]	15 [0–18]	*P*<0.001
Cumulative OME H24–H48, mg	15 [0–30]	15 [0–30]	15 [15–38]	0.06
VRS pain scores				
VRS at H0	0 [0–6]	5 [0–8]	0 [0–0]	*P*<0.001
VRS at H6	0 [0–2]	1 [0–3]	0 [0–0]	*P*<0.001
VRS at H12	0 [0–0]	0 [0–1]	0 [0–0]	*P*<0.01
VRS at H18	0 [0–2]	0 [0–2]	0 [0–2]	0.90
VRS at H24	2 [0–3]	1 [0–2]	2 [0–4]	0.06
VRS at H30	1 [0–4]	1 [0–3]	3 [0–5]	0.07
VRS at H36	0 [0–1]	0 [0–0]	0 [0–2]	*P*<0.01
VRS at H42	0 [0–2]	0 [0–2]	0 [0–2]	0.90
VRS at H48	0 [0–2]	0 [0–1]	0 [0–2]	0.19
Postoperative additional block, *n* (%)	6 (7)	4 (9)	2 (4)	0.67

Marty in press

Combined proximal or distal nerve blocks for postoperative analgesia after total knee arthroplasty: a randomised controlled trial

BJA

Philippe Marty[1,*], Clément Chassery[1], Olivier Rontes[1], Corine Vuillaume[1], Bertrand Basset[1], Mehdi Merouani[1], Constance Marquis[1], Anne De Lussy[1], Fabrice Ferré[2], Cécile Naudin[3], Girish P. Joshi[4] and Alain Delbos[1]

Table 4 Postoperative mobility in the distal and proximal groups.* Values are given as *n* (%). *Physiotherapist tests are missing for two patients in distal group on day 0 and day 2, and two patients in proximal group on day 2. †P-values compare distal *vs* proximal groups. ‡Mann–Whitney *U*-test used to compare mean ranks and χ^2 test or Fisher's exact test used to compare proportions.

	Distal group	Proximal group	P-value†,‡
Ability to stand up			
Day 0 (operating day)	33/43 (77)	29/45 (64)	0.20
Day 1	44/45 (98)	43/45 (96)	1.00
Day 2	43/43 (100)	43/43 (100)	—
Ability to walk			
Day 0 (operating day)	25/43 (58)	1/45 (2)	<0.001
Day 1	43/45 (96)	41/45 (91)	0.66
Day 2	43/43 (100)	42/43 (98)	1.00
Walking >50 m			
Day 0 (operating day)	14/43 (33)	1/45 (2)	<0.001
Day 1	37/45 (82)	33/45 (73)	0.31
Day 2	39/43 (91)	40/43 (93)	1.00
Quadriceps motricity (paralysis/paresis/normal)			
Day 0 (operating day)	6/14/23 (14/33/53)	41/3/1 (91/7/2)	<0.001
Day 1	1/4/40 (2/9/89)	2/4/39 (4/9/87)	0.75
Day 2	0/0/43 (0/0/100)	0/1/42 (0/2/98)	1.00
Foot elevator (paralysis/paresis/normal)			
Day 0 (operating day)	3/8/32 (7/19/74)	35/8/2 (78/18/4)	<0.001
Day 1	0/0/45 (0/0/100)	2/2/41 (4/4/92)	0.12
Day 2	0/0/43 (0/0/100)	0/0/43 (0/0/100)	—

Marty in press

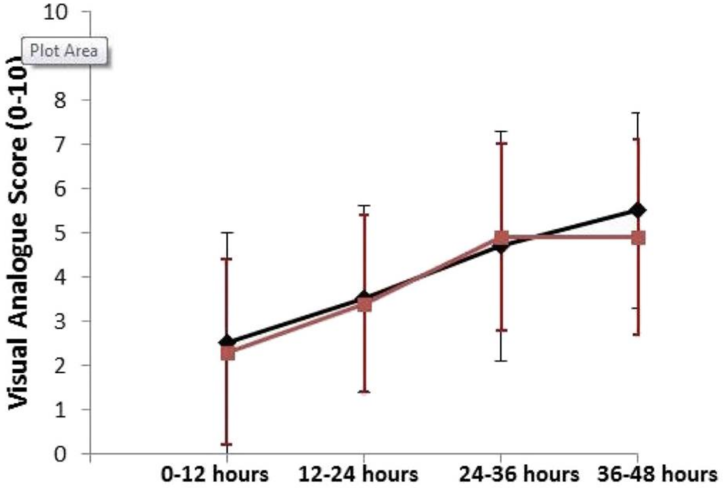
Effectiveness of continuous versus single injection femoral nerve block for total knee arthroplasty: A double blinded, randomized trial

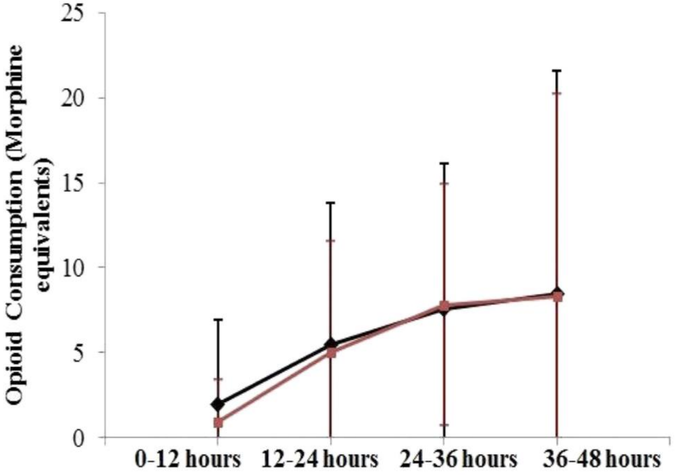
Varun Dixit [a,*,1], Samreen Fathima [b], Stephen M. Walsh [c,d], Alexandru Seviciu [a], Ivan Schwendt [a], Stephen M. Walsh [a]

Table 2
Secondary outcomes by group.

	cFNB (n = 44)	sFNB (n = 41)	*P* value
Therapy delayed (%)	11% (5)	7% (3)	0.766
Unable to ambulate	9.2% (4)	2.4% (1)	–
Weakness/dizziness	2.3% (1)	4.8% (2)	
Distance-walked (m) (M ± *SD*)			
0 m at 1st session	16% (n = 7)	15% (n = 6)	–
At 1st PT session	109 ± 97	103 ± 84	–
At 2nd PT session	201 ± 180	210 ± 139	–
Assistive device			
Used at 1st session (%)	93% (40/41)	93% (37/38)	–
Knee immobilizer discharged at hospital	77.3% (34/44)	75.6% (31/41)	0.903
Time with knee immobilizer hours (M ± *SD*)	36 ± 12 (n = 38)	30 ± 11.7 (n = 38)	0.021*
Independent at 2nd session	43.2% (19/43)	65.9% (27/40)	0.036¥
Hospital stay (M ± *SD*) (days)	2.2 ± 0.5	2.1 ± 0.4	0.517
Discharged to rehab (%) (n/N)	18.2% (8/44)	4.9% (2/41)	0.057
Minor adverse events (yes)	13% (6)	17% (7)	0.660
Nausea	68% (30)	61% (25)	0.487

cFNB: continuous catheter femoral nerve block; sFNB: single injection femoral nerve block; PT: physical therapy.

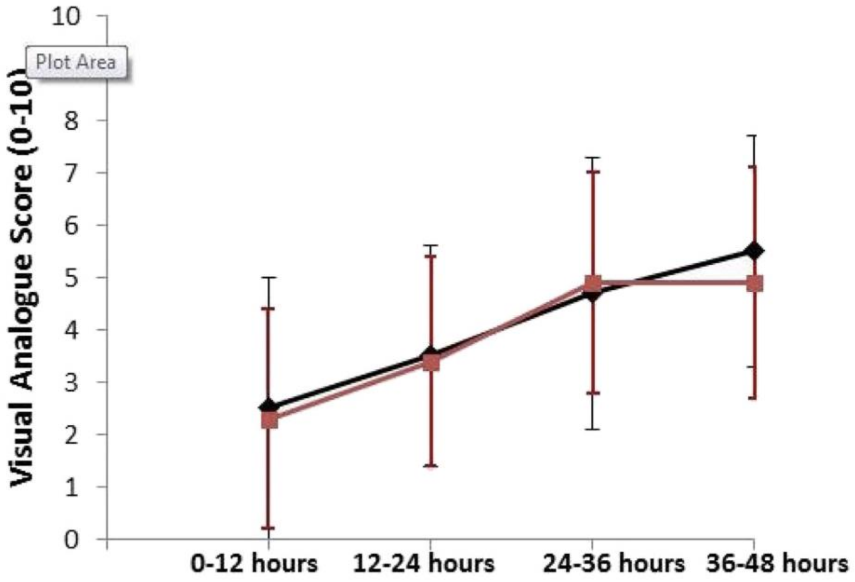


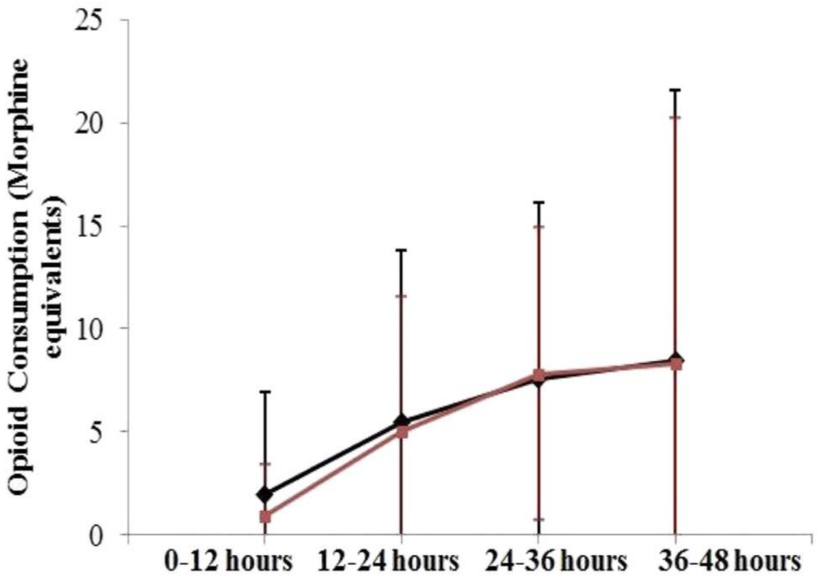


Dixit 2018

Effectiveness of continuous versus single injection femoral nerve block for total knee arthroplasty: A double blinded, randomized trial

Varun Dixit [a,*,1], Samreen Fathima [b], Stephen M. Walsh [c,d], Alexandru Seviciu [a], Ivan Schwendt [a], Stephen M. Walsh [a]





Effectiveness of continuous versus single injection femoral nerve block for total knee arthroplasty: A double blinded, randomized trial

Varun Dixit [a,*,1], Samreen Fathima [b], Stephen M. Walsh [c,d], Alexandru Seviciu [a], Ivan Schwendt [a], Stephen M. Walsh [a]

Table 2
Secondary outcomes by group.

	cFNB (n = 44)	sFNB (n = 41)	*P* value
Therapy delayed (%)	11% (5)	7% (3)	0.766
Unable to ambulate	9.2% (4)	2.4% (1)	–
Weakness/dizziness	2.3% (1)	4.8% (2)	
Distance-walked (m) (M ± *SD*)			
0 m at 1st session	16% (n = 7)	15% (n = 6)	–
At 1st PT session	109 ± 97	103 ± 84	–
At 2nd PT session	201 ± 180	210 ± 139	–
Assistive device			
Used at 1st session (%)	93% (40/41)	93% (37/38)	–
Knee immobilizer discharged at hospital	77.3% (34/44)	75.6% (31/41)	0.903
Time with knee immobilizer hours (M ± *SD*)	36 ± 12 (n = 38)	30 ± 11.7 (n = 38)	0.021*
Independent at 2nd session	43.2% (19/43)	65.9% (27/40)	0.036*
Hospital stay (M ± *SD*) (days)	2.2 ± 0.5	2.1 ± 0.4	0.517
Discharged to rehab (%) (n/N)	18.2% (8/44)	4.9% (2/41)	0.057
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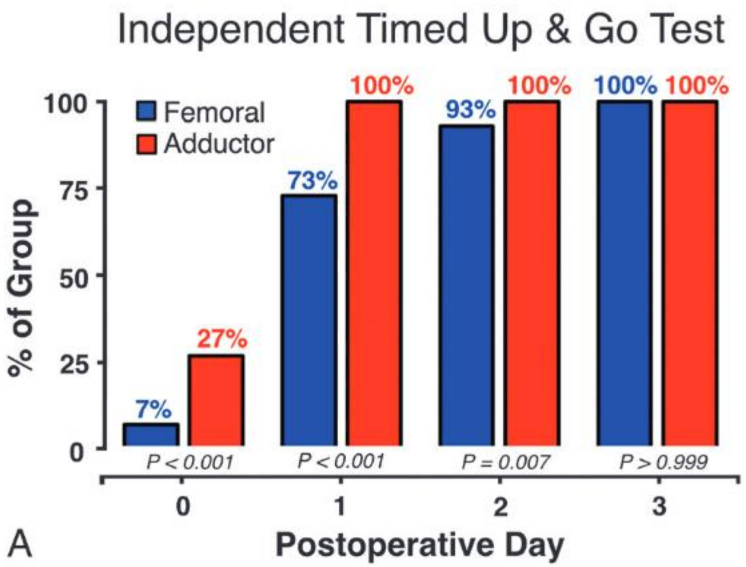
cFNB: continuous catheter femoral nerve block; sFNB: single injection femoral nerve block; PT: physical therapy.

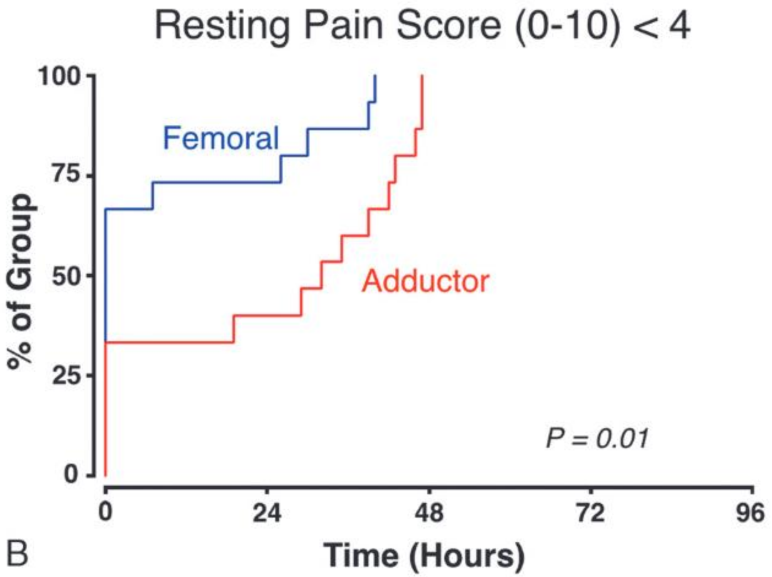
Continuous Adductor Canal Versus Continuous Femoral Nerve Blocks

Relative Effects on Discharge Readiness Following Unicompartment Knee Arthroplasty

Jacklynn F. Sztain, MD, Anthony T. Machi, MD,* Nicholas J. Kormylo, MD,* Wendy B. Abramson, MD,* Sarah J. Madison, MD,* Amanda M. Monahan, MD,* Bahareh Khatibi, MD,* Scott T. Ball, MD,† Francis B. Gonzales, MD,† Daniel I. Sessler, MD,‡ Edward J. Mascha, PhD,‡§ Jing You, MS,‡§ Ken A. Nakanote, BA,|| and Brian M. Ilfeld, MD, MS**

Regional Anesthesia & Pain Medicine



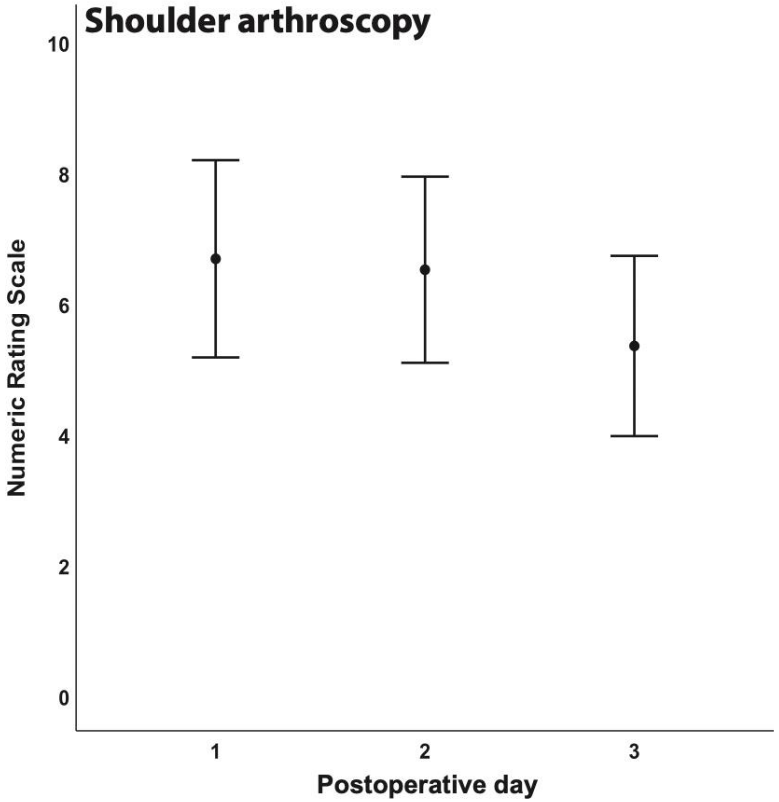


Sztain 2015

Using postoperative pain trajectories to define the role of regional analgesia in personalised pain medicine

E. R. Mariano,[1,2] **K. El-Boghdadly**[3,4] and **B. M. Ilfeld**[5,6]

Anaesthesia
Association of Anaesthetists

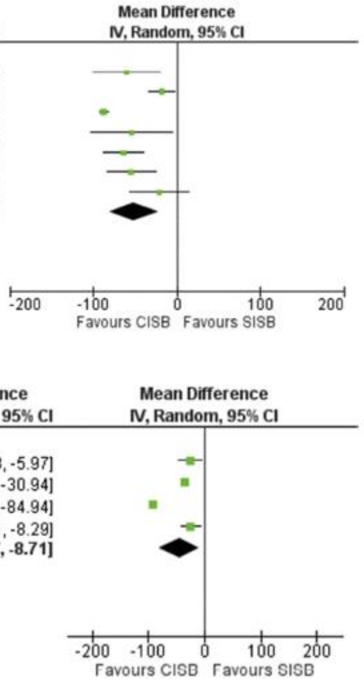


Mariano 2021

Should continuous rather than single-injection interscalene block be routinely offered for major shoulder surgery? A meta-analysis of the analgesic and side-effects profiles

BJA

L. Vorobeichik[1], R. Brull[1,2], R. Bowry[1,3], J. G. Laffey[1,4,5,6] and F. W. Abdallah[1,4,5,7,*]


A

Study or Subgroup	CISB Mean	CISB SD	CISB Total	SISB Mean	SISB SD	SISB Total	Weight	Mean Difference IV, Random, 95% CI
3.1.2 CISB vs. SISB								
Ducombs 2005 (65)	39	24	10	99	60	10	12.8%	-60.00 [-100.05, -19.95]
Goebel 2010 (59)	60.1	35.3	34	77.9	31.3	36	16.0%	-17.80 [-33.46, -2.14]
Ilfeld 2003 (60)	30.6	5.3	10	118	5.6	10	16.7%	-87.40 [-92.18, -82.62]
Klein 2000 (24)	132	87	22	186	72	18	11.4%	-54.00 [-103.27, -4.73]
Malik 2016 (25)	0	65	43	63.8	47.8	42	15.1%	-63.80 [-88.02, -39.58]
Salviz 2013 (45)	9.15	65	20	63.8	14.4	23	14.4%	-54.65 [-83.74, -25.56]
Tuominen 1987 (64)	42.5	65	20	63.8	47.8	20	13.5%	-21.30 [-56.66, 14.06]
Subtotal (95% CI)			**159**			**159**	**100.0%**	**-51.70 [-81.10, -22.30]**

Heterogeneity: $Tau^2 = 1339.43$; $Chi^2 = 86.80$, df = 6 ($P < 0.00001$); $I^2 = 93\%$
Test for overall effect: $Z = 3.45$ ($P = 0.0006$)

Test for subgroup differences: Not applicable

B

Study or Subgroup	CISB Mean	CISB SD	CISB Total	SISB Mean	SISB SD	SISB Total	Weight	Mean Difference IV, Random, 95% CI
3.2.2 CISB vs. SISB								
Ducombs 2005 (65)	16	12	10	42	30	10	24.0%	-26.00 [-46.03, -5.97]
Ilfeld 2003 (60)	4.9	2.2	10	39.4	5.3	10	25.8%	-34.50 [-38.06, -30.94]
Malik 2016 (25)	0.1	9.5	43	92	21	42	25.6%	-91.90 [-98.86, -84.94]
Salviz 2013 (45)	41.4	34.7	20	66	14.4	23	24.6%	-24.60 [-40.91, -8.29]
Subtotal (95% CI)			**83**			**85**	**100.0%**	**-44.74 [-80.77, -8.71]**

Heterogeneity: $Tau^2 = 1305.58$; $Chi^2 = 217.53$, df = 3 ($P < 0.00001$); $I^2 = 99\%$
Test for overall effect: $Z = 2.43$ ($P = 0.01$)

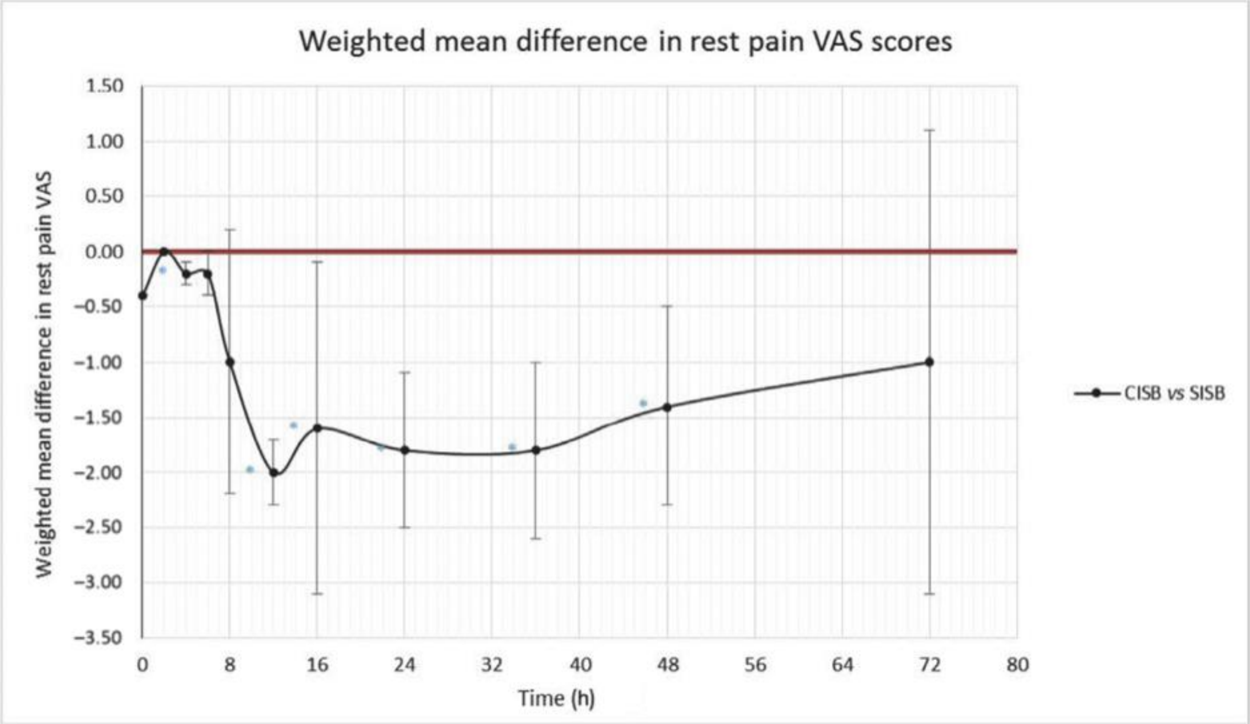
Fig 2. Forest plot depicting A) 0–24 hour and B) 24–48 hour analgesic consumption.

Vorobeichik 2018

Should continuous rather than single-injection interscalene block be routinely offered for major shoulder surgery? A meta-analysis of the analgesic and side-effects profiles

L. Vorobeichik[1], R. Brull[1,2], R. Bowry[1,3], J. G. Laffey[1,4,5,6] and F. W. Abdallah[1,4,5,7,*]

BJA



Vorobeichik 2018

Peripheral nerve block anesthesia/analgesia for patients undergoing primary hip and knee arthroplasty: recommendations from the International Consensus on Anesthesia-Related Outcomes after Surgery (ICAROS) group based on a systematic review and meta-analysis of current literature

Regional & Pain Anesthesia Medicine

Results: Analysis of 122 studies revealed that PNB use (compared with no use) was associated with lower ORs for (OR with 95% CIs) for numerous complications (total hip and knee arthroplasties (THA/TKA), respectively): cognitive dysfunction (OR 0.30, 95% CI 0.17 to 0.53/OR 0.52, 95% CI 0.34 to 0.80), respiratory failure (OR 0.36, 95% CI 0.17 to 0.74/OR 0.37, 95% CI 0.18 to 0.75), cardiac complications (OR 0.84, 95% CI 0.76 to 0.93/OR 0.83, 95% CI 0.79 to 0.86), surgical site infections (OR 0.55 95% CI 0.47 to 0.64/OR 0.86 95% CI 0.80 to 0.91), thromboembolism (OR 0.74, 95% CI 0.58 to 0.96/OR 0.90, 95% CI 0.84 to 0.96) and blood transfusion (OR 0.84, 95% CI 0.83 to 0.86/OR 0.91, 95% CI 0.90 to 0.92).

Conclusions: Based on the current body of evidence, the consensus group recommends PNB use in THA/TKA for improved outcomes.

Memtsoudis 2021

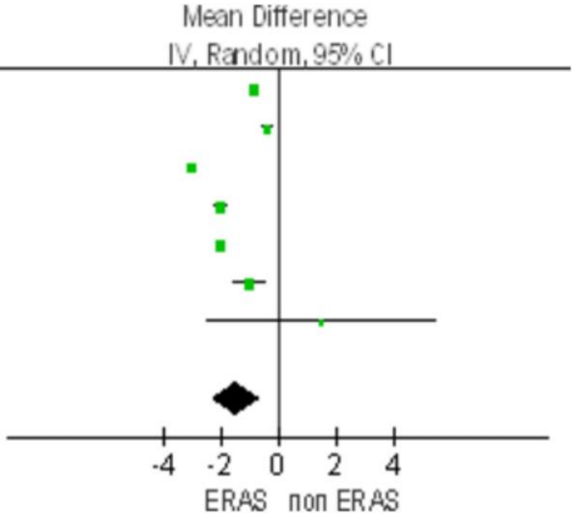
Enhanced recovery after surgery for hip and knee arthroplasty: a systematic review and meta-analysis

Postgraduate Medical Journal

Shibai Zhu, Wenwei Qian, Chao Jiang, Canhua Ye, Xi Chen

	ERAS			non ERAS				Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI
Auyong DB 2015	2.34	0.97	126	3.19	0.27	126	16.3%	-0.85 [-1.03, -0.67]
Christelis N 2015	4.9	1.6	297	5.3	1.6	412	16.2%	-0.40 [-0.64, -0.16]
Malviya A 2011	3	1.5	1500	6	2.85	3000	16.3%	-3.00 [-3.13, -2.87]
McDonald DA 2012	4	2	1081	6	3	735	16.2%	-2.00 [-2.25, -1.75]
Stambough JB 2015	2	1	488	4	1	281	16.3%	-2.00 [-2.15, -1.85]
Stowers MD 2016	4	2	100	5	2	100	15.3%	-1.00 [-1.55, -0.45]
Talboys R 2016	8.5	9.4	50	7	11.2	50	3.4%	1.50 [-2.55, 5.55]
Total (95% CI)			3642			4704	100.0%	-1.44 [-2.29, -0.60]

Heterogeneity: $Tau^2 = 1.12$; $Chi^2 = 588.97$, $df = 6$ ($P < 0.00001$); $I^2 = 99\%$
Test for overall effect: $Z = 3.37$ ($P = 0.0008$)



Zhu 2017

conclusion

- La LIA doit être limitée à la PTH
- Ne pas opposer mobilité et analgésie
- Il faut mieux prévenir la douleur que la traiter
- La douleur aigue fait le lit de la douleur chronique
- L'analgésie locorégionale est le gold standard grace à son épargne morphinique
- L'ALR permet pour la réduction des complications post opératoires