



Con il patrocinio di



Centro Specialistico Ortopedico Traumatologico
Gaetano Pini-CTO

Sistema Socio Sanitario



Regione
Lombardia

ASST Gaetano Pini



ESRA MEETING ANNUAL UPDATE

1 day, 1 programme, 3 cities

MILANO, 13 APRILE 2024

Responsabile scientifico:
Andrea Tognù

Presidente Onorario:
Paolo Grossi

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State of the Art Safety Standards in RA
THE EUROPEAN SOCIETY OF REGIONAL
ANAESTHESIA & PAIN THERAPY



European Society of
Regional Anaesthesia
& Pain Therapy
ESRA ITALIA

IL DOLORE CRONICO POST- CHIRURGIA: COME GESTIRLO?

Dott. Roberto Discepoli
Medico Anestesista
ASST G.Pini, Milano

CPSP a cosa ci riferiamo?

Il dolore cronico postoperatorio e post-traumatico non era rappresentato nella classificazione internazionale delle malattie ICD-10.

Nel 2019 viene classificato e definito secondo ICD-11: Il dolore cronico postoperatorio o postraumatico è definito come dolore cronico che si sviluppa o aumenta di intensità dopo un intervento chirurgico o una lesione tissutale e persiste oltre il processo di guarigione, cioè almeno 3 mesi dopo l'intervento chirurgico o il trauma tissutale.

[Review](#) > [Pain](#). 2019 Jan;160(1):45-52. doi: 10.1097/j.pain.0000000000001413.

The IASP classification of chronic pain for ICD-11: chronic postsurgical or posttraumatic pain

[Stephan A Schug](#)¹, [Patricia Lavand'homme](#)², [Antonia Barke](#)³, [Beatrice Korwisi](#)³,
[Winfried Rief](#)³, [Rolf-Detlef Treede](#)⁴; [IASP Taskforce for the Classification of Chronic Pain](#)

INCIDENZA CPSP nelle varie chirurgie

The Perioperative Surgical Home: A New Role for the Acute Pain Service

Michael P. Zaccagnino, MD, Angela M. Bader, MD, Christine N. Sang,
Anesthesia & Analgesia

Volume 125(4) pgs. 1087-1425 October 2017

ISSN: 0003-2999

(C) 2017 International Anesthesia Research Society



Table 1. Incidence of CPSP After Various Surgeries^{1,7}

Limb amputation:	30%–80%
Total hip arthroplasty:	30%
Hysterectomy:	5%–30%
Cesarean delivery:	10%
Breast surgery	20%–50%
Groin hernia surgery:	10%
Sternotomy:	20%
Thoracotomy:	25%–60%

Abbreviation: CPSP, chronic postsurgical pain.

Si stima essere una complicanza post
operatoria relativamente frequente, dal
10% al 70%

INCIDENZA CPSP post PTG

> [J Rheumatol](#). 2019 Sep;46(9):1134-1140. doi: 10.3899/jrheum.170990. Epub 2019 Apr 15.

Rates of Total Joint Replacement in the United States: Future Projections to 2020–2040 Using the National Inpatient Sample

[Jasvinder A Singh](#)^{1 2}, [Shaohua Yu](#)^{3 4}, [Lang Chen](#)^{3 4}, [John D Cleveland](#)^{3 4}

[Arthritis Care Res \(Hoboken\)](#). 2013 Nov; 65(11): 1795–1803.

PMCID: PMC3883092

Published online 2013 Nov 1. doi: [10.1002/acr.22050](#)

PMID: [23740860](#)

Assessment of Chronic Postsurgical Pain After Knee Replacement: A Systematic Review

[Vikki Wyld](#),¹ [Julie Bruce](#),² [Andrew Beswick](#),¹ [Karen Elvers](#),¹ and [Rachael Gooberman-Hill](#)¹

▶ [Author information](#) ▶ [Article notes](#) ▶ [Copyright and License information](#) ▶ [PMC Disclaimer](#)

Dal 13% al 30%
dei pazienti che si
sottopongono ad un
intervento di PTG va in
contro a CPSP

FATTORI PROGNOSTICI negativi

FATTORI SOCIO- DEMOGRAFICI

- Supporto sociale

FATTORI PSICOSOCIALI E COGNITIVI

- ansia e depressione
- malattie psichiatriche,
- Catastrofizzazione
- Cinesifobia

FATTORI CLINICI E SENSITIVI

- Intensità e durata del dolore preoperatorio
- Perdita di funzione
- Iperalgesia
- Consumo d'oppioidi

Review > [J Clin Med.](#) 2023 Oct 19;12(20):6624. doi: 10.3390/jcm12206624.

Prognostic Factors for Postoperative Chronic Pain after Knee or Hip Replacement in Patients with Knee or Hip Osteoarthritis: An Umbrella Review

César Fernández-de-Las-Peñas^{1 2}, Lidiane L Florencio¹, Ana I de-la-Llave-Rincón¹, Ricardo Ortega-Santiago¹, Margarita Cigarán-Méndez³, Stella Fuensalida-Novo¹, Gustavo Plaza-Manzano^{4 5}, Lars Arendt-Nielsen^{2 6}, Juan A Valera-Calero^{4 5}, Marcos J Navarro-Santana^{4 5}

PAIN GENERATOR

Il target terapeutico e l'approccio multidisciplinare



I meccanismi del dolore cronico post chirurgia

MECCANICI

- Mobilizzazione della protesi
- Andatura alterata
- Lassità dei legamenti

BIOLOGICI

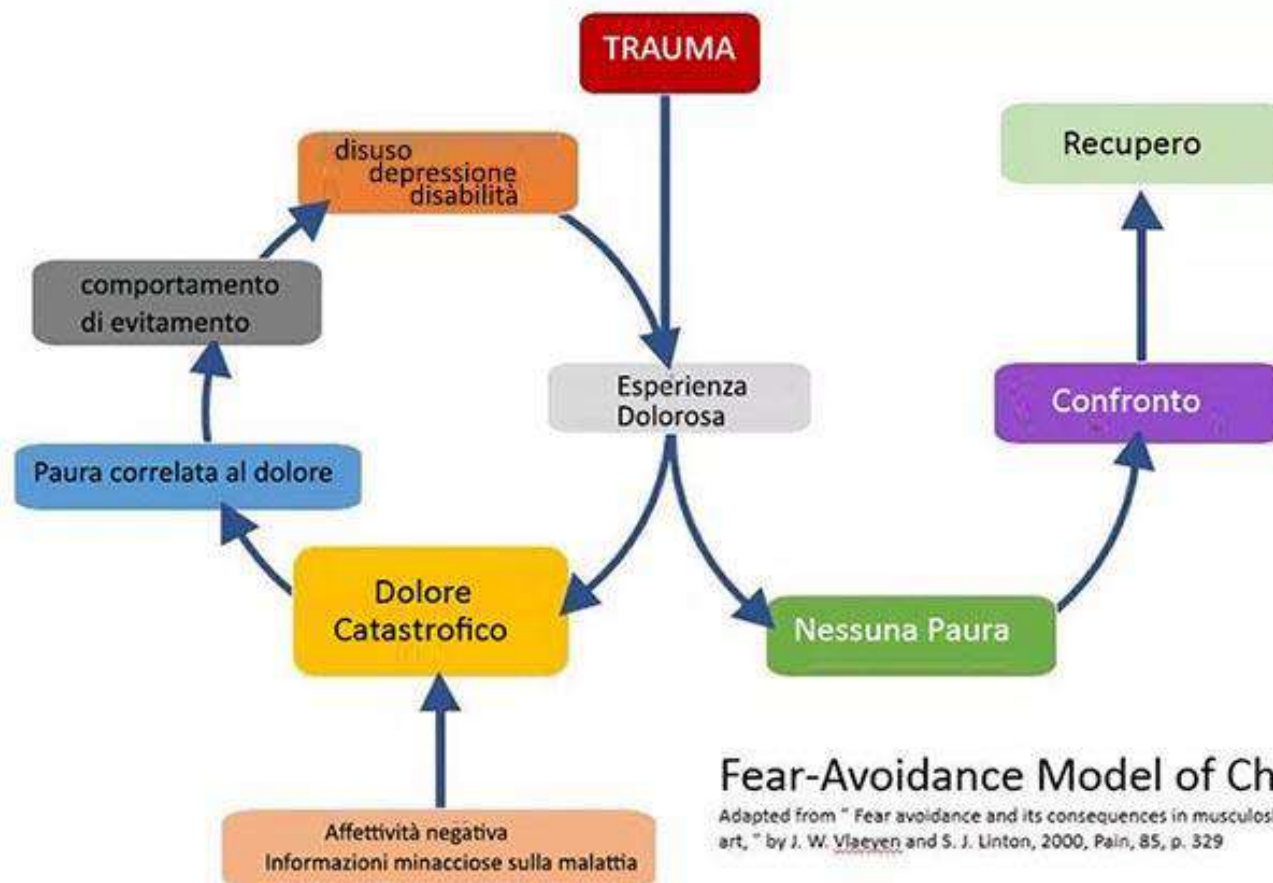
- Infezione
- Infiammazione



I meccanismi del dolore cronico post chirurgia

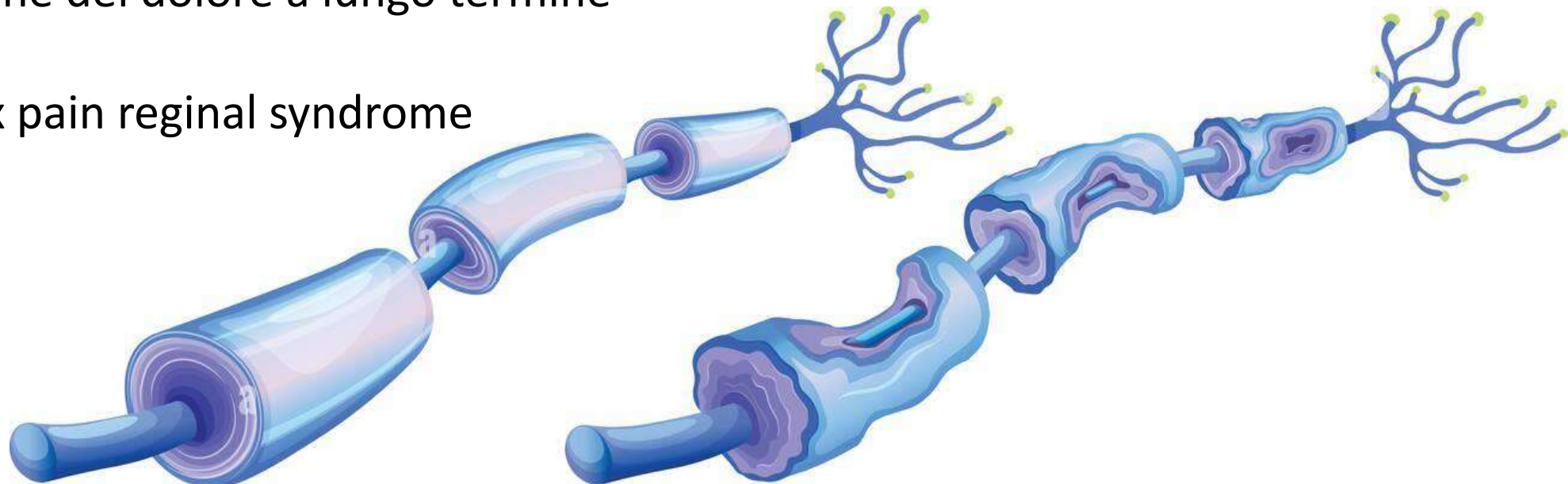
PSICOLOGICI

- Depressione
- Catastrofizzazione del dolore



I meccanismi del dolore cronico post chirurgia di competenza della terapia del dolore

- Sensibilizzazione del dolore a lungo termine
- Neuropatia
- CPRS Complex pain regional syndrome



STRATEGIE TERAPEUTICHE

FARMACOLOGICHE, PROCEDURALI e CHIRURGICHE

- Paracetamolo
- FANS e inibitori COX-2
- Gabapentinoidi
- Oppioidi
- TCA (amitriptilina)
- SNRI SSRI
- Trattamenti topici
- RF
- PNS
- SCS
- Stimolazione DRG
- Neurolisi



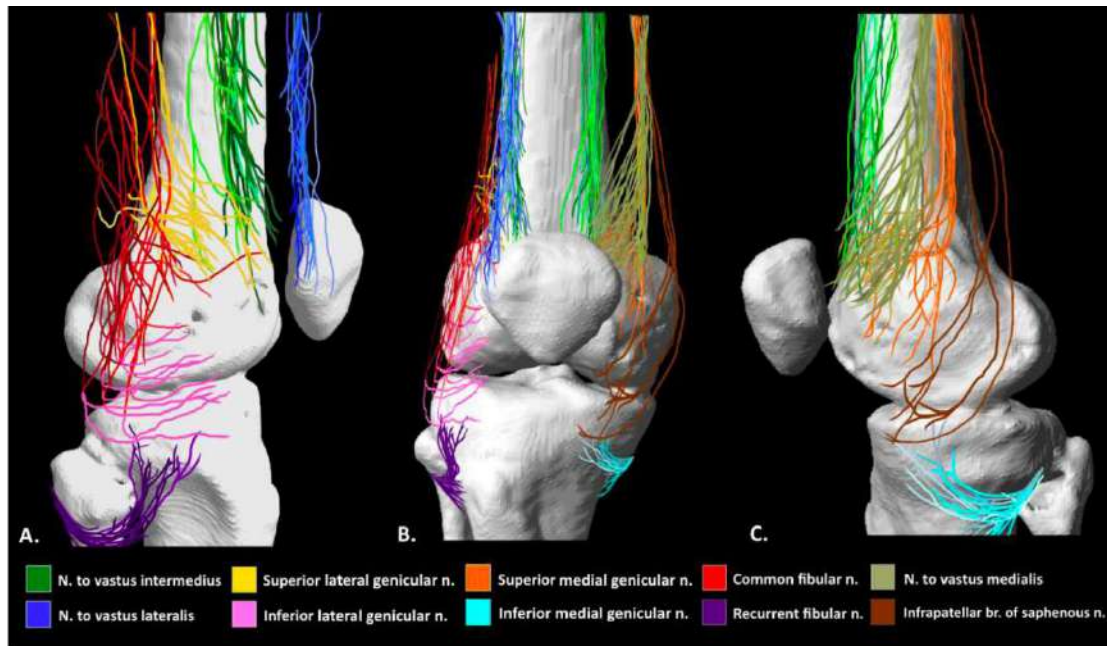
INNERVAZIONE DELLA CAPSULA DEL GINOCCHIO

CHRONIC AND INTERVENTIONAL PAIN

ORIGINAL ARTICLE

Anatomical Study of the Innervation of Anterior Knee Joint Capsule Implication for Image-Guided Intervention

John Tran, HBSc,* Philip W.H. Peng, MBBS,† Karen Lam, MD,† Ehtesham Baig, MD,†
Anne M.R. Agur, PhD,* and Michael Gofeld, MD†

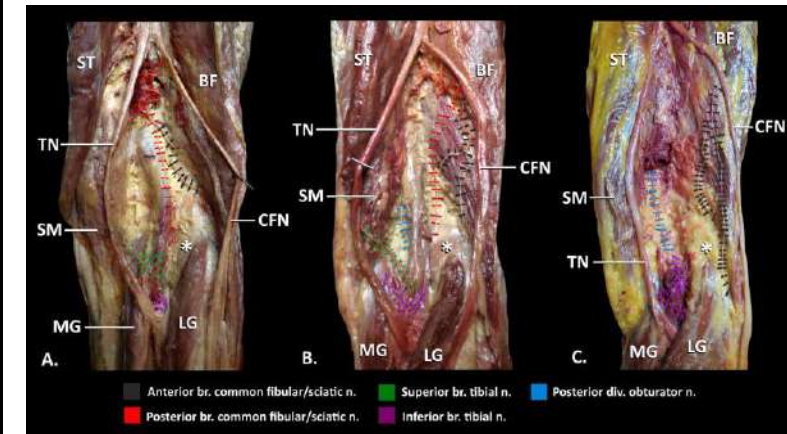
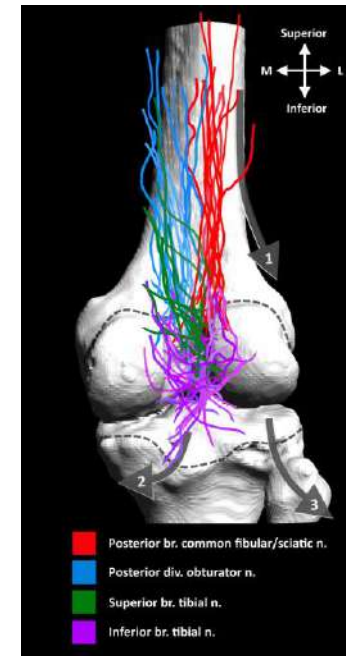


Reg Anesth Pain Med. 2018 May;43(4):407-414

Original article

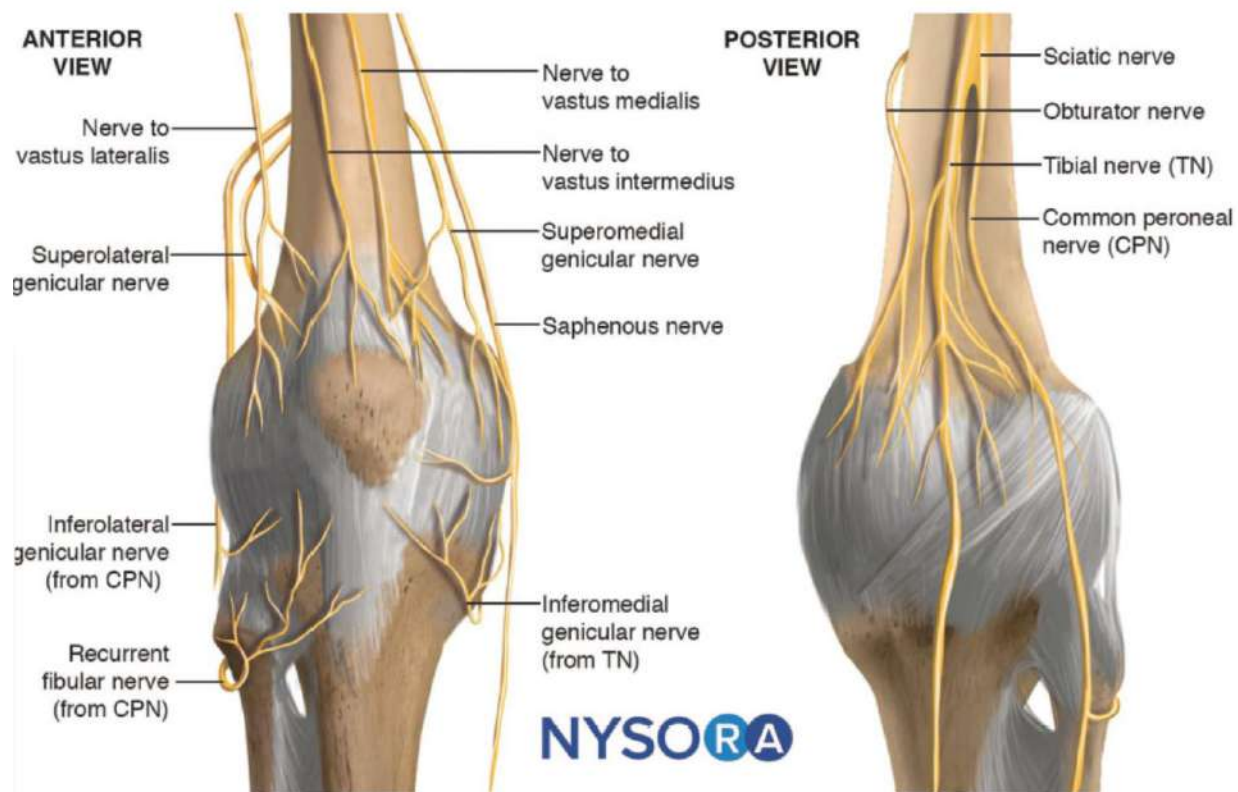
Anatomical study of the innervation of posterior knee joint capsule: implication for image-guided intervention

John Tran,¹ Philip W H Peng,² Michael Gofeld,² Vincent Chan,² Anne M R Agur¹



Reg Anesth Pain Med. 2019 Feb;44(2):234-238.

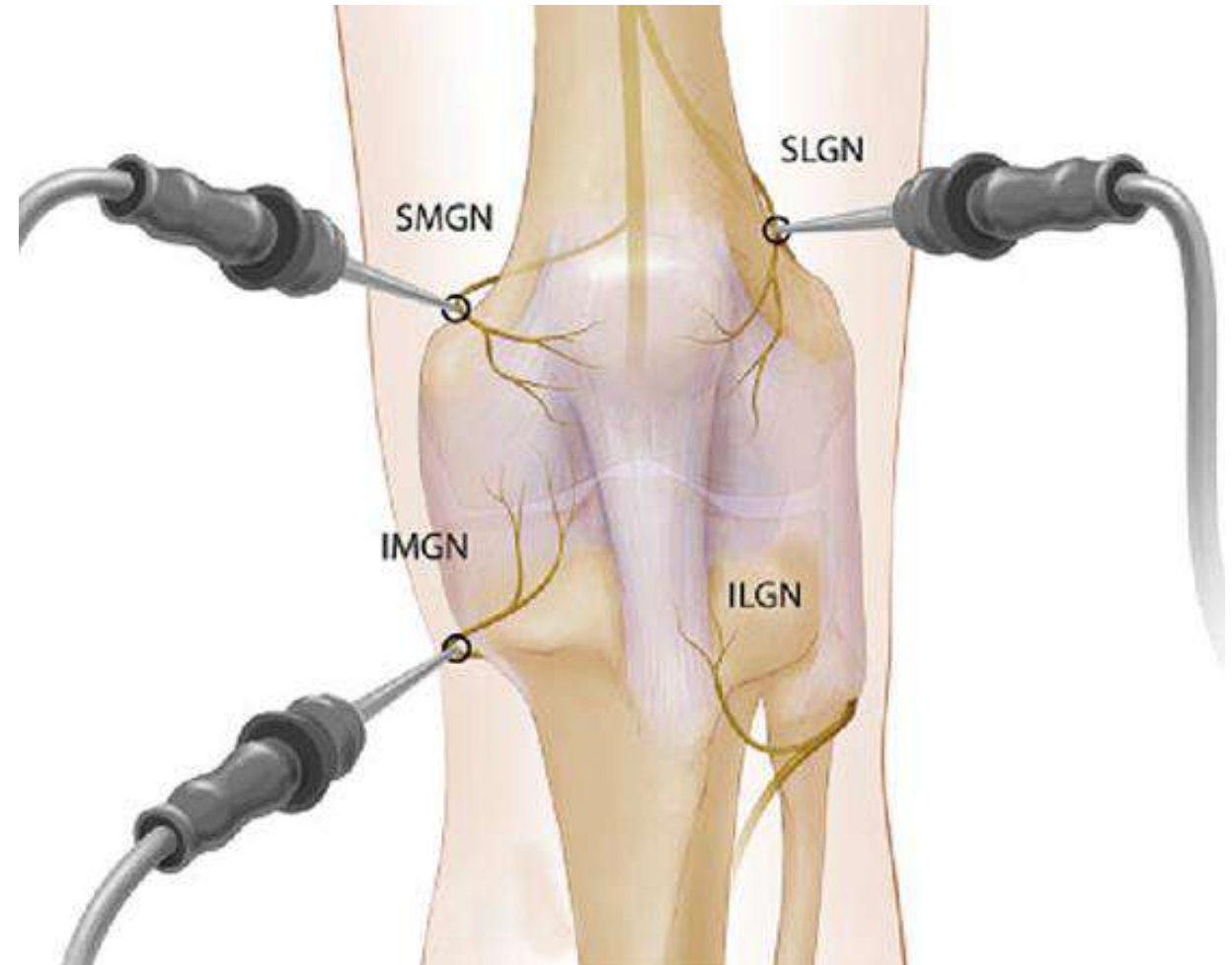
NERVI GENICOLATI



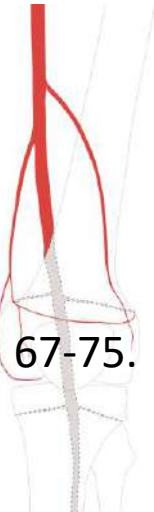
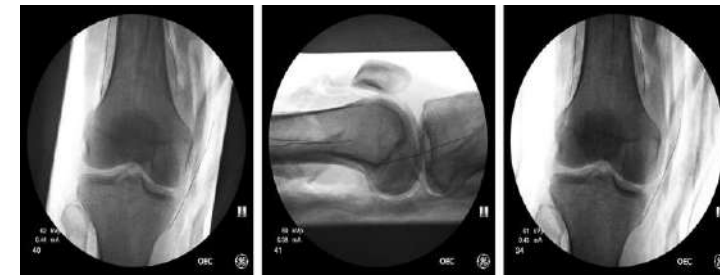
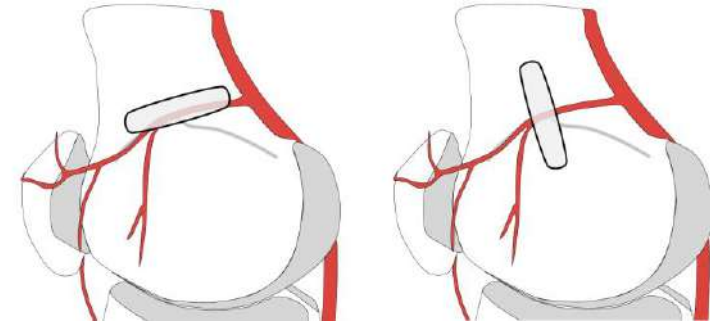
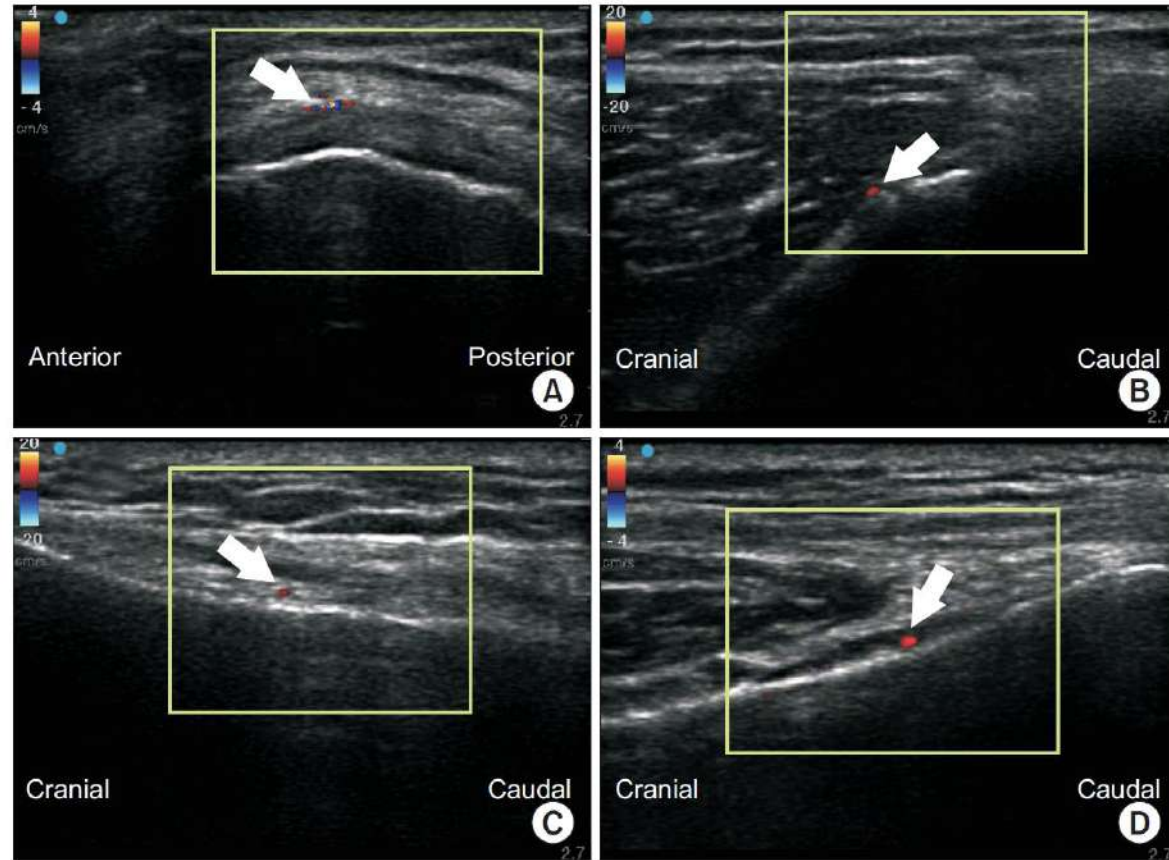
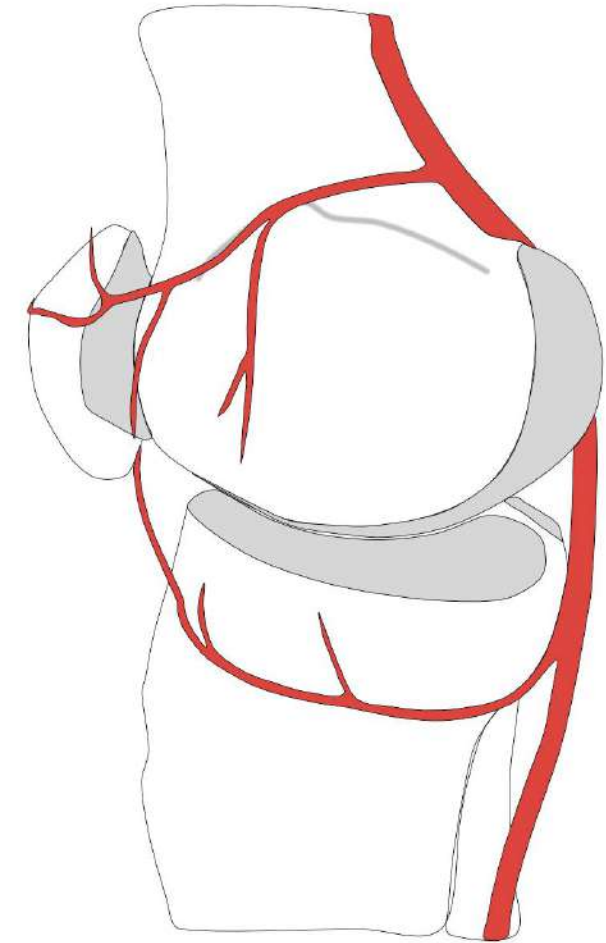
- SLGN n peroneale comune
- SMGN n tibiale
- IMGN n tibiale
- ILGN n peroneale comune
- IPGN n safeno
- SP n safeno

RF nervi genicolati

- Paziente sveglio
- Flessione ginocchio 30°
- Identificazione ecografica
- Stimolazione sensitiva
- Stimolazione attività motoria 2 Hz 1 mA
- Controllo fluoroscopico
- Somministrazione RF
- Somministrazione steroide



Localizzazione ultrasonografica delle arterie genicolate → Genicular nerves blocks



Han, K. et al. "Localization of the genicular arteries under ultrasound guidance." *Anesthesia and pain medicine* 14 (2019): 67-75.

RF nervi genicolati

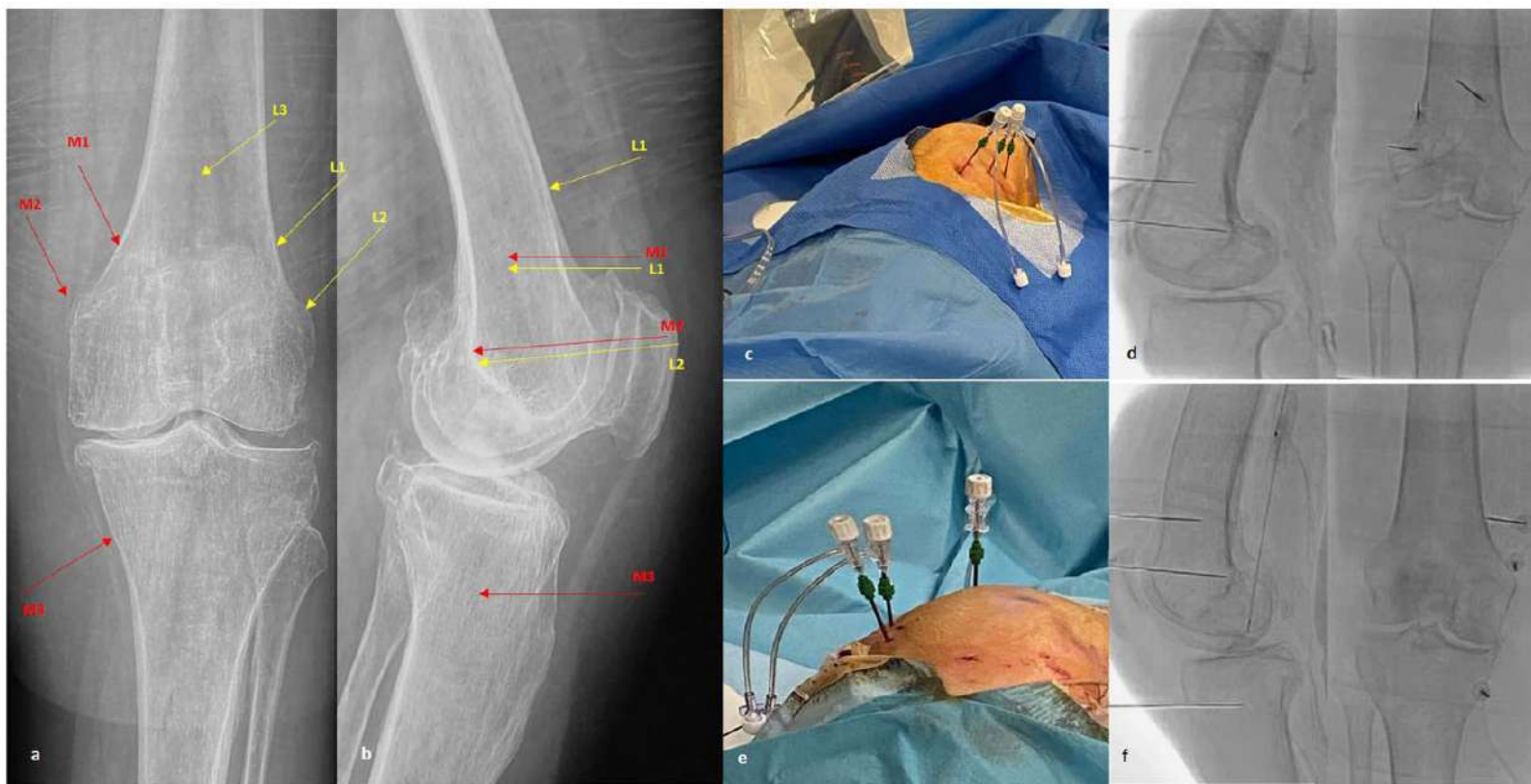
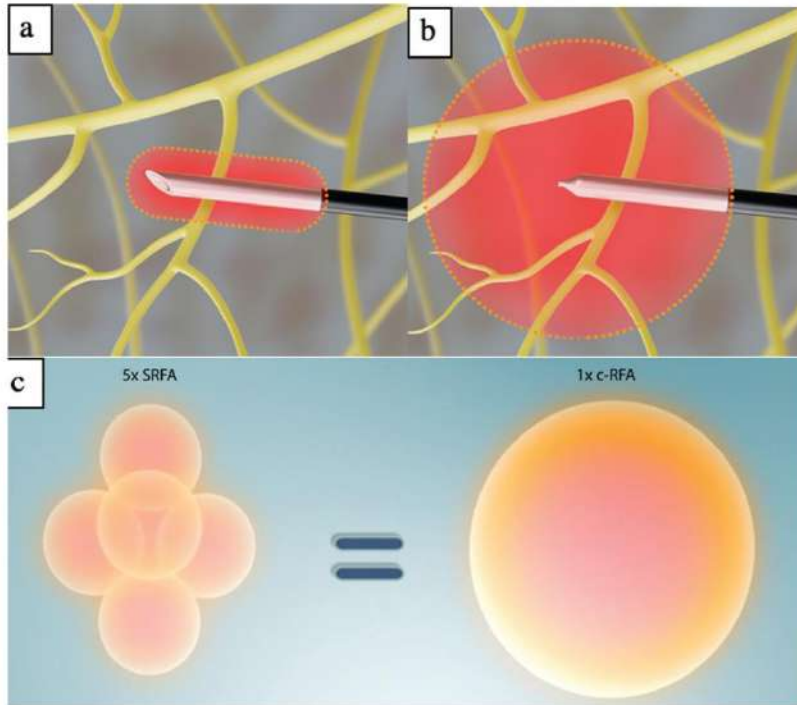


Fig. 2 **a, b** Anteroposterior and lateral radiographs of an arthritic knee showing the intended target-points of the genicular nerves (M1, M2 = SMGN, M3 = IMGN, L1, L2 = SLGN, L3 = MRGN); **c** intraoperative picture of the needles in the lateral side just prior to ablation **d** anteroposterior and lateral fluoroscopic images of the exact location of the needles in the lateral side; **e** intraoperative picture of the needles in the medial side just prior to ablation; **f** anteroposterior and lateral fluoroscopic images of the exact location of the needles in the medial side

Radiofrequenza termoablazione convenzionale vs raffreddata



> *Reg Anesth Pain Med.* 2024 Feb 21;rapm-2023-105127. doi: 10.1136/rapm-2023-105127. Online ahead of print.

Cooled versus conventional radiofrequency treatment of the genicular nerves for chronic knee pain: 12-month and cost-effectiveness results from the multicenter COCOGEN trial

Amy Belba^{1,2}, Thibaut Vanneste^{3,4}, Jan Willem Kallewaard^{5,6}, Sander Mj van Kuijk⁷, Marloes Gelissen⁴, Peter Emans⁸, Johan Bellemans^{2,9}, Kristof Smeets^{10,11}, Koen Van Boxem¹, Micha Sommer⁴, Merel Kimman⁷, Jan Van Zundert^{1,4}

- Dolore cronico da OA: nessuna differenza a 12 mesi tra le 2 tecniche nel trattamento del dolore da OA (successo attorno al 30%)
- Dolore croico post operatorio dopo PTK differenza statisticamente significativa tra le due tecniche.

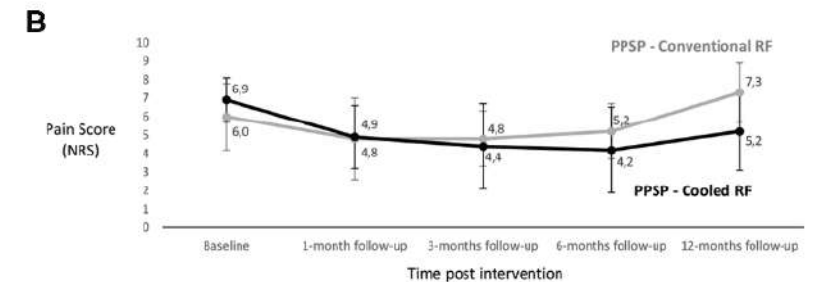
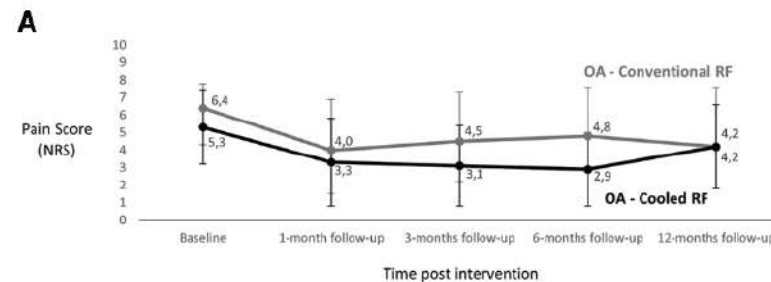


Fig. 2 Ablative zones of different types of radiofrequency ablation. (a) Standard radiofrequency ablation (SRFA) imparts temperatures greater than 100 °C at the electrode–tissue interface, forming an elliptical ablation zone (red) of limited reach secondary to tissue charring. (b, c) RFA imparts an average temperature of 77–80 °C at the electrode–tissue interface, allowing the formation of a larger spherical ablation zone (red), and capturing a greater number of articular sensory nerve fibers. (c) Ablative zones generated by c-RFA are around five times those of SRFA.

CRIONEUROLISI

Cooled radiofrequency ablation versus cryoneurolysis of the genicular nerves for the symptomatic pain management in knee osteoarthritis: a study protocol of a prospective, randomized, single-blinded clin...

Authors: A.Panagopoulos, P.Tsiplakos, K.Katsanos...



[View research catalog entry for this paper](#)

Journal: *Journal of Orthopaedic Surgery and Rese...*

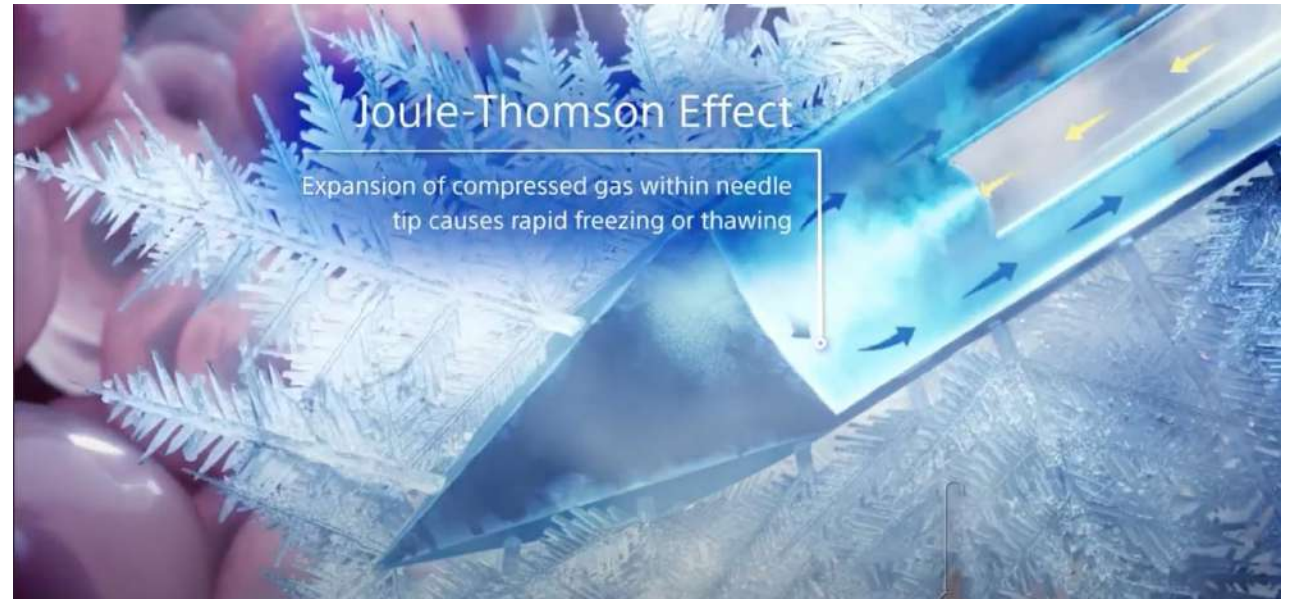
Year: 2023

Volume: 18

Issue: 1

Pages:

- Raggiunge temperature di attorno a- 60°C
- Degenerazione Walleriana
- Iceball
- Efficacia sovrapponibile alla RF raffreddata



Neuropatia IPS

Diagnosi

- Dolore persistente ginocchio anteriore
- Rossore, edema iperalgesia
- Diagnosi differenziale con CRPS
- Dolore alla palpazione medialmente alla tuberosità tibiale
- Blocco test con AL

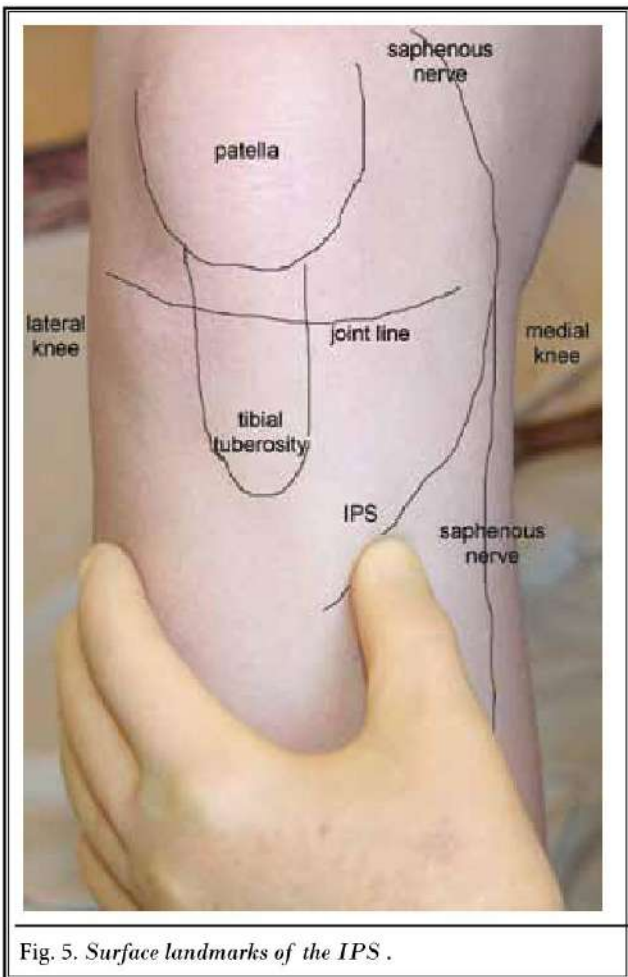


Fig. 5. Surface landmarks of the IPS .

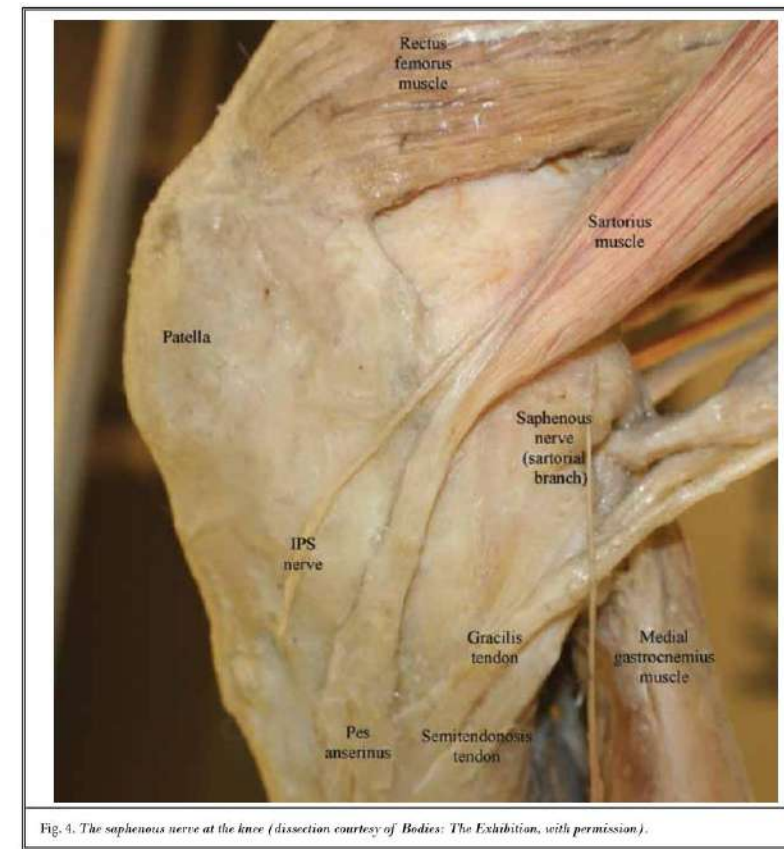


Fig. 4. The saphenous nerve at the knee (dissection courtesy of Bodies: The Exhibition, with permission).

Trescot AM, Brown MN, Karl HW. Infrapatellar saphenous neuralgia - diagnosis and treatment. Pain Physician. 2013 May-Jun

Nervo infrapatellare

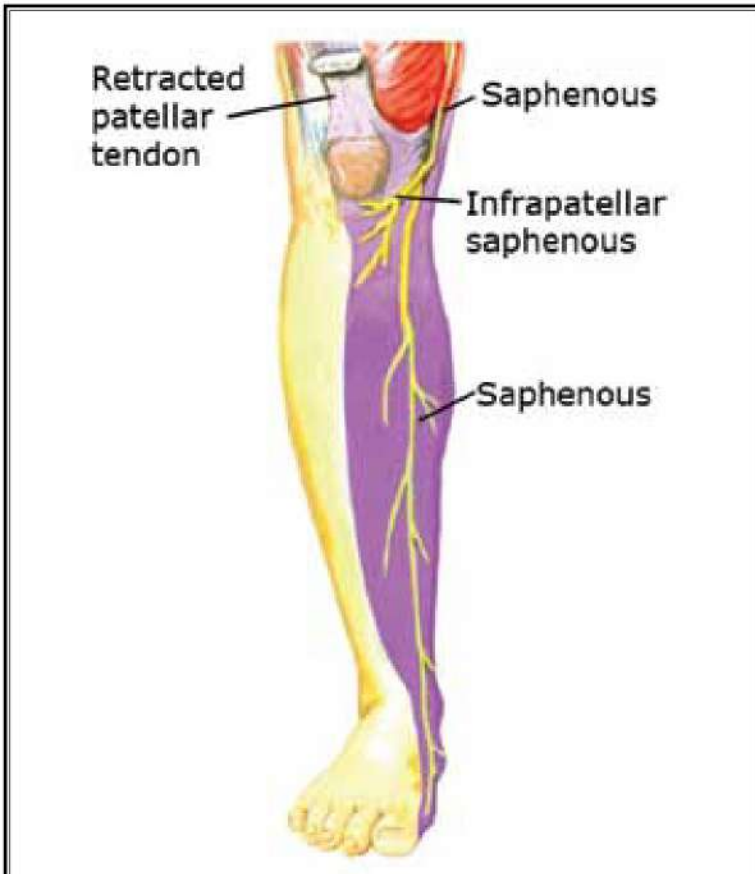
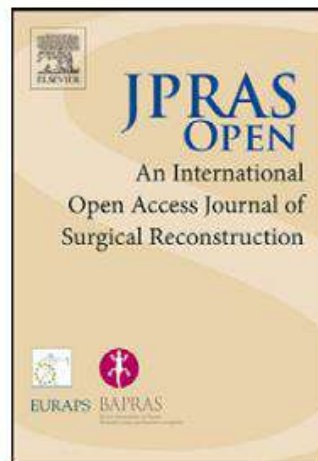


Fig. 2. The anatomy and pattern of pain of the saphenous nerve at the knee (image modified from Netter by author 2).

- Frequentemente lesionato in artroscopia ricostruzione LCA, frattura piatto tibiale e PTG
incidenza dal 21 al 69%
- Alta variazione anatomica
- Blocco test per identificazione



Original Article

The origin and course of the infrapatellar branch of the saphenous nerve: An anatomical study

David D. Krijgh^{a,#}, Emile B. List^{a,#,*}, Teun Teunis^b,
Ronald L.A.W. Bleys^c, J. Henk Coert^a

^aDepartment of Plastic and Reconstructive Surgery, University Medical Center Utrecht, The Netherlands

^bDepartment of Orthopaedic Surgery, University Pittsburgh Medical Center, University of Pittsburgh, Pittsburgh, Pennsylvania

^cDepartment of Anatomy, University Medical Center Utrecht, The Netherlands

PNS (Peripheral nerve stimulation)

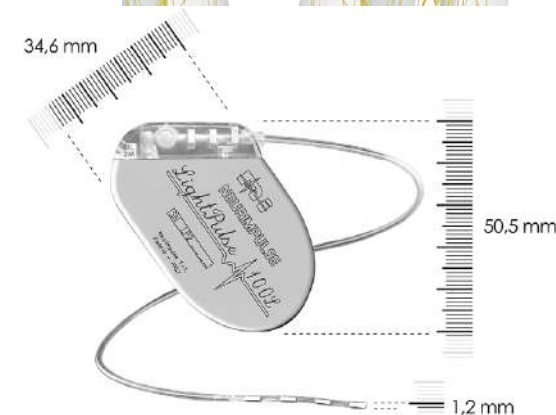
Tecnica di neuromodulazione di un nervo periferico.

Tipicamente, la PNS è costituita da un elettrodo impiantato accanto al nervo prescelto, che può quindi essere stimolato con l'obiettivo di fornire sollievo dal dolore.

US FDA ha approvato l'utilizzo di sistemi PNS temporanei per il trattamento del dolore cronico, post chirurgico e post traumatico, mentre gli impianti definitivi trovano indicazione per le mononeuropatie periferiche.



nalu
SYSTEM



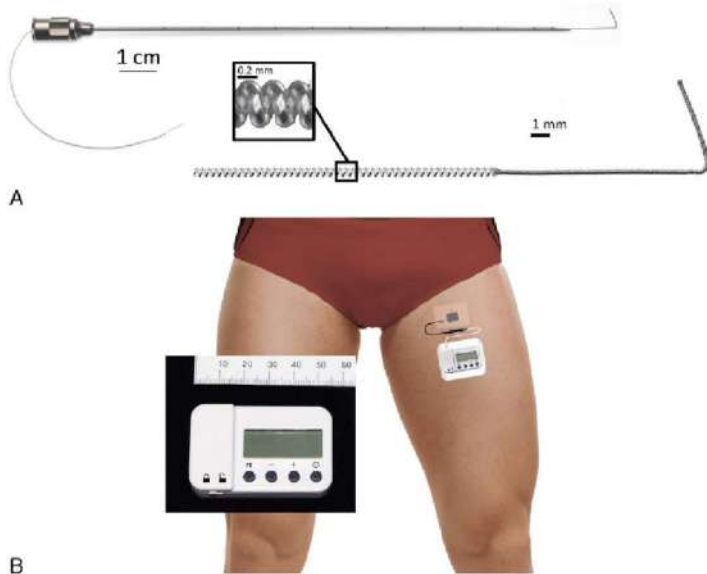
PNS (Peripheral nerve stimulation)

Systematic Review

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Peripheral nerve stimulation for chronic knee pain following total knee arthroplasty: a systematic review

Edwin Amirianfar^{*1}, Richard Rosales¹, Andrew Logan¹, Tina L Doshi², John Reynolds³ & Chane Price⁴



Pain Management



- 9 studi (circa 60 pazienti)
- L'impianto più diffusamente utilizzato è SPRINT PNS System (SPR Therapeutics, OH, USA), approvato da US FDA come temporaneo (60 giorni).
- Non ancora standardizzato posizionamento e programmazione: il target più diffusi sono il nervo safeno e nervi genicolati (IP, SL e SM).
- Tutti i lavori riportano un miglioramento del NRS a riposo

DRG stimulation

Dorsal Root Ganglion Stimulation for Chronic Pain After Total Knee Arthroplasty: A Narrative Review

Authors: A.Rupp, S.Char, J.Hagedorn

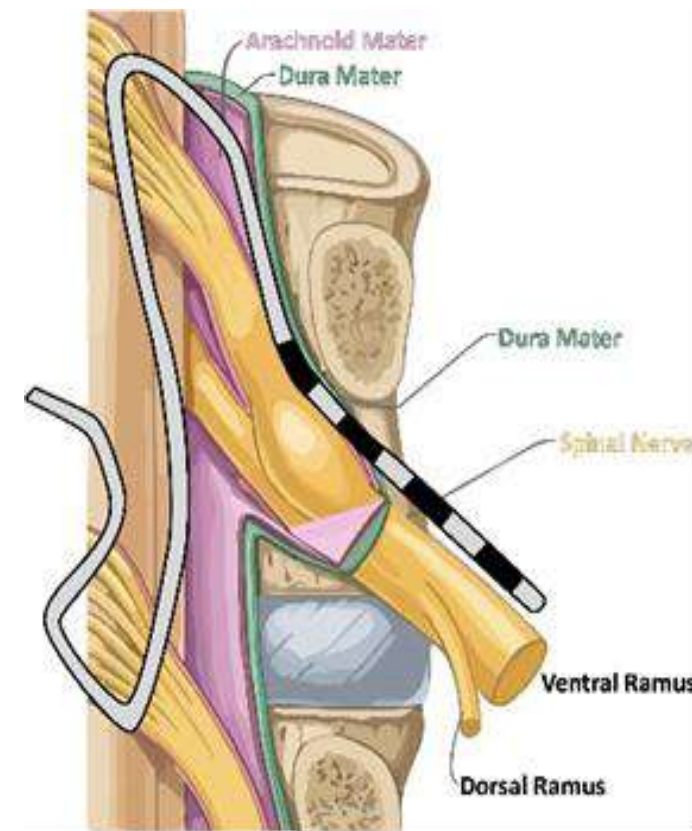


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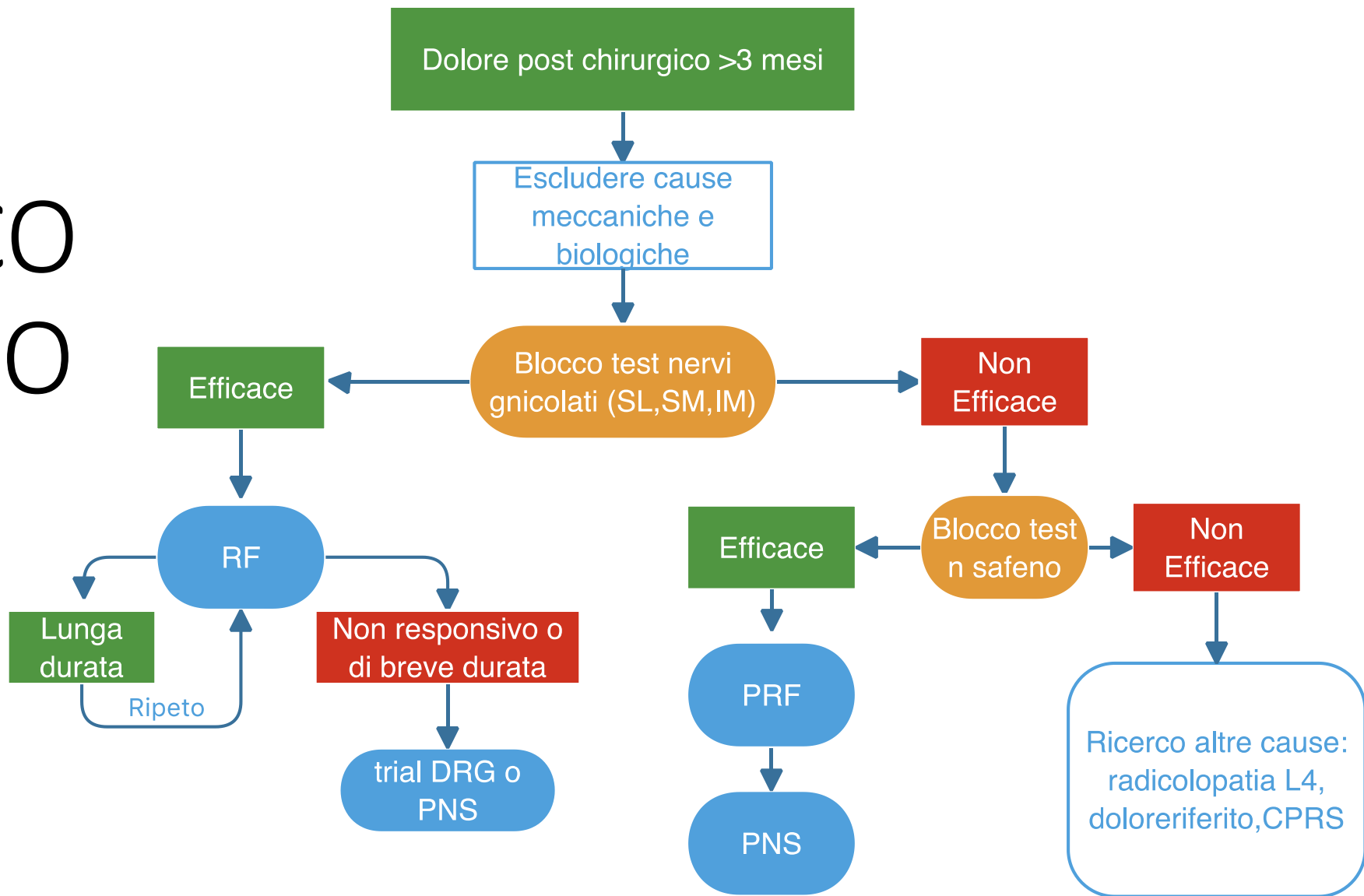
Journal: *Pain Medicine*



- Posizionamento peridurale
- Indicazioni CPRS I e II, sindromi dolorose localizzate
- Raccomandato posizionamento L3 o L4
- Promettente non ancora forti evidenze per l'esiguo numero dei casi trattati CPSP



PERCORSO DIAGNOSTICO TERAPEUTICO



**THANK
YOU
FOR
YOUR
ATTENTION**