

Place de la prolothérapie neurale (infiltrations sous-cutanées de glucosé 5%) dans le traitement des douleurs périnéales et du syndrome de stress post-traumatique

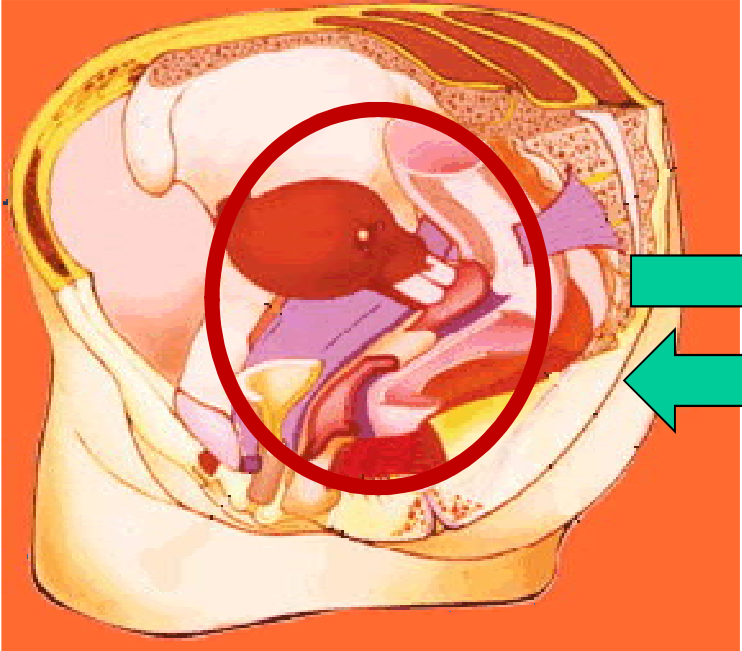
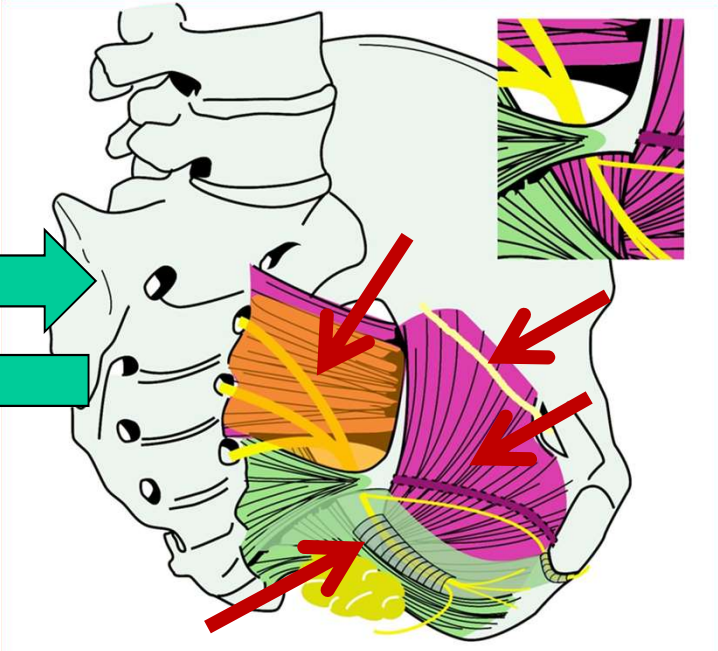
**Dr Jacques Beco**

Université de Liège

CHC Clinique Sainte Elisabeth Heusy

**SMAV, Verviers le 16/10/2019**

# Origine de la douleur: Organes ou muscles-nerfs ?

| Symptômes  | « Organique »<br>Le Contenu   | « Fonctionnelle »<br>Le Contenant  |
|--|---|--|
| Douleur périnéale<br>Cystite<br>Dyspareunie<br>Incontinence<br>Vaginite<br>Vulvite<br>Coccygodynie<br>Corps étranger |  |  |

**Organes**

**Nerfs et Muscles**

# Douleur périnéale => diagnostic tardif Cause

**Nerf-Muscles ??**



**Gynéco-Uro-Proctologues  
Nerfs et muscles ??**

**Périnée ??**



**Neurologues et Neurochirurgiens  
Toucher vaginal ou rectal ??**

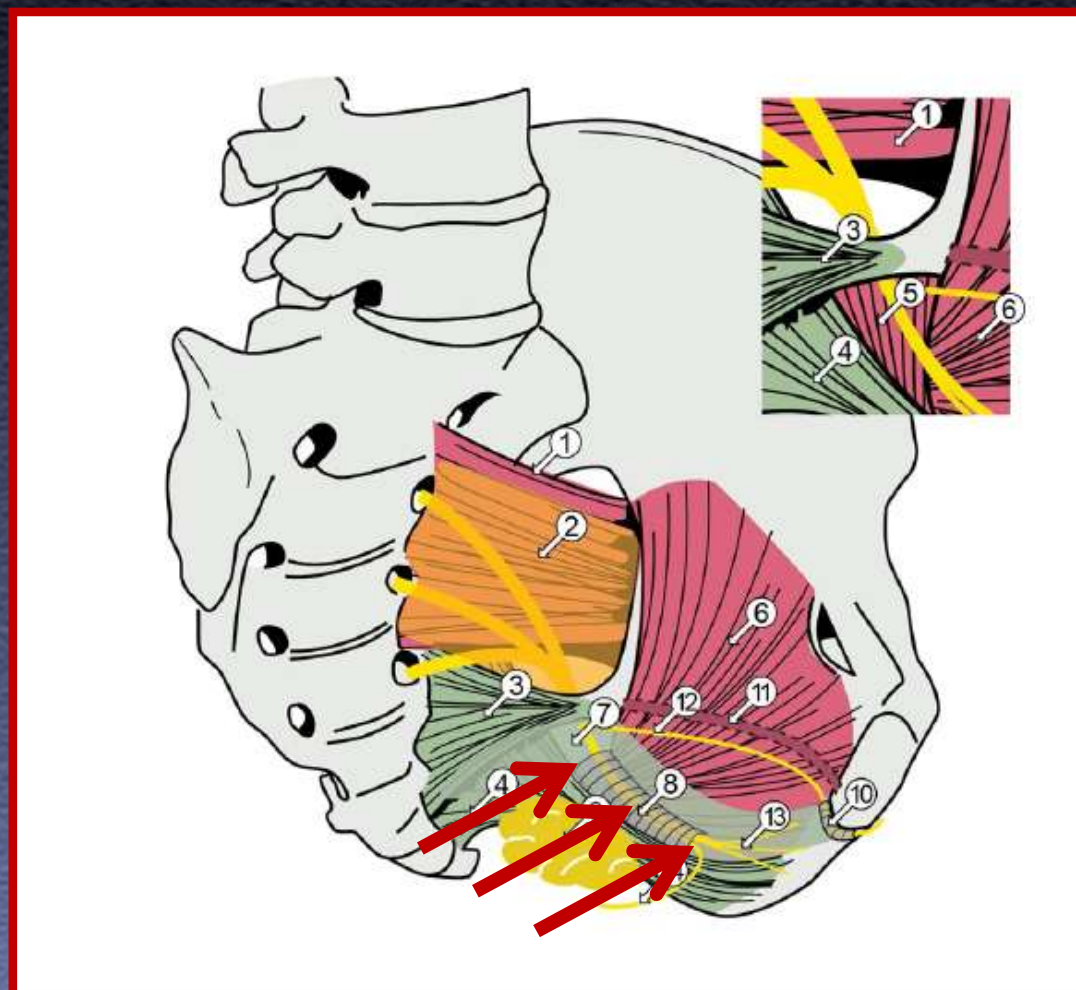
# Névralgie: signes cliniques

1. Douleur à la pression du tronc nerveux
2. Palpé-roulé douloureux
3. Hyper ou hypoesthésie locale

Les diagnostiquer = éviter beaucoup  
d'examens complémentaires et d'opérations  
inutiles => \$\$\$\$\$\$\$\$\$\$

# Douleur à la pression

(territoire du nerf pûdental)



# Palpé-roulé douloureux

(territoire du nerf pudendal)



**Si douloureux => névralgie**

# Test de sensibilité à l'aiguille

(territoire du nerf pudendal)



Vulve



Para-Anal

Si hypo ou hyper (allodynie) => névralgie

# Comment traiter une névralgie en première ligne ?

- Classiquement: anesthésiques locaux et/ou corticoïdes
- La prolothérapie neurale: injection de glucosé 5%



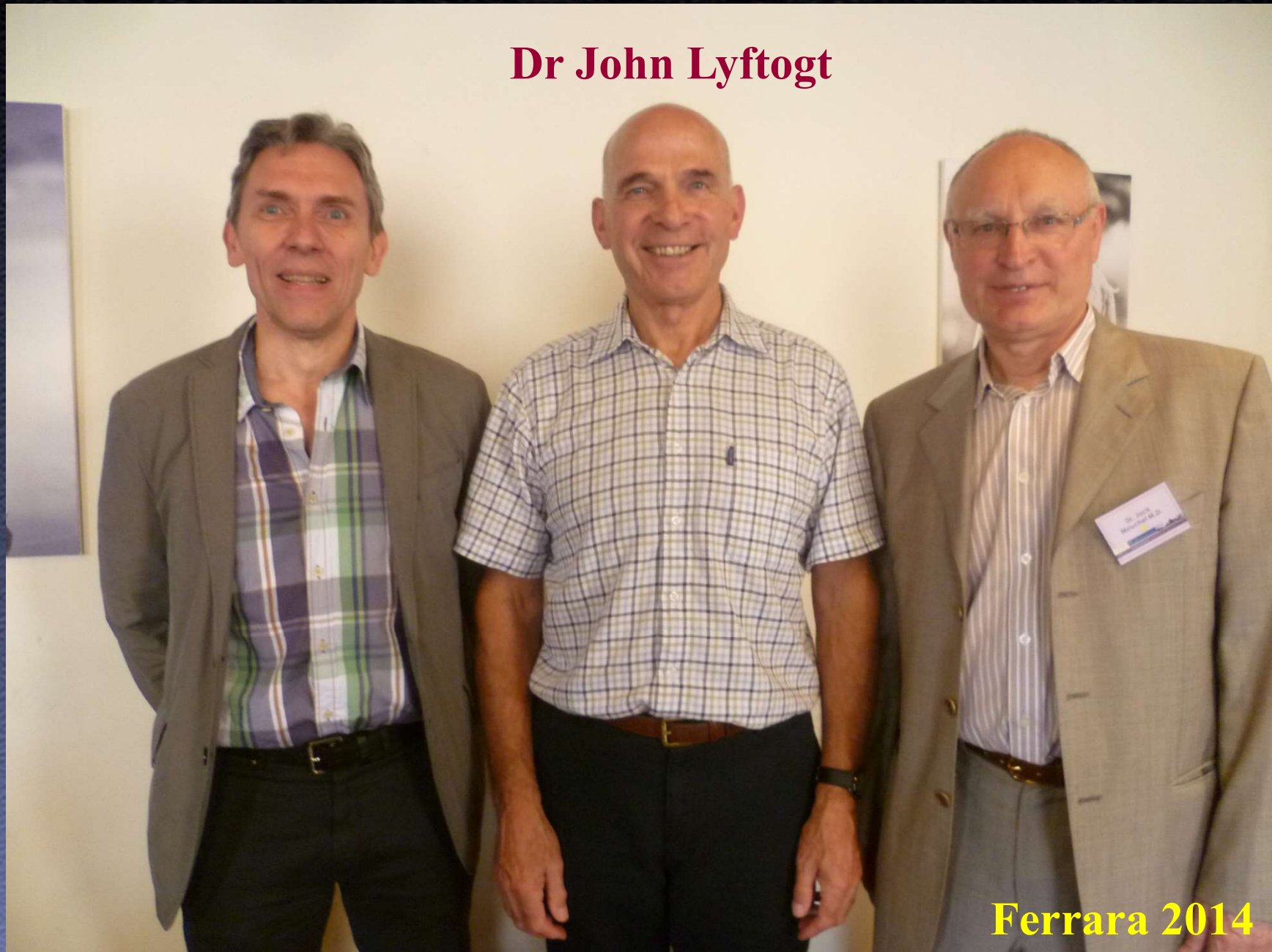


**Dr John Lyftogt**

Depuis 2009

90 workshops - 17 pays - 3500 médecins formés

**Dr John Lyftogt**



**Ferrara 2014**

We inject buffered Dextrose 5% in sterile water (D5W)

near nerves in the **interstitium**

bypassing the **Blood Nerve Barrier**

correcting **neuronal energy deprivation**

“to help the progress of the nerve towards health”

# Fibres C et TRPV1

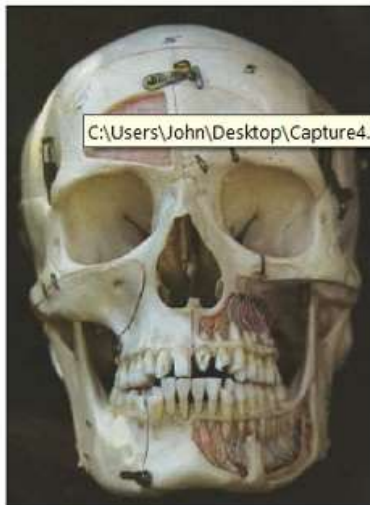
## Névralgie et inflammation neurogène

Hypothèse actuelle:

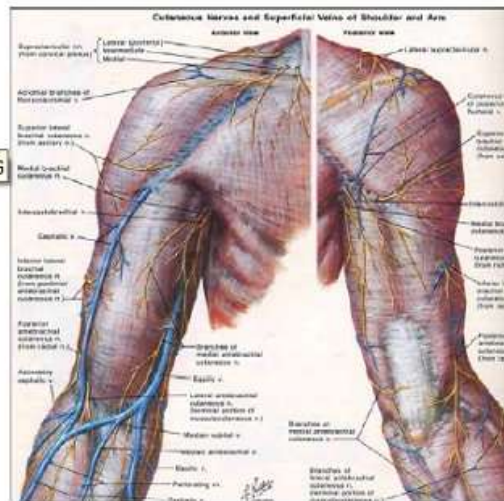
1. Irritation du nerf par frottement ou compression
2. Stimulation des nervi nervorum (fibres C) => libération Substance P et CGRP => inflammation avec œdème et douleur du nerf (via TRPV1)
3. Œdème du nerf
4. Augmentation de la pression dans le nerf
5. Réduction de la vascularisation avec hypoxie et glycopénie notamment des fibres C
6. Libération de Substance P et CGRP à l'extrémité du nerf
7. Inflammation neurogène et douleur de l'organe cible (via TRPV1)

# 1. Irritation par frottement ou compression du nerf

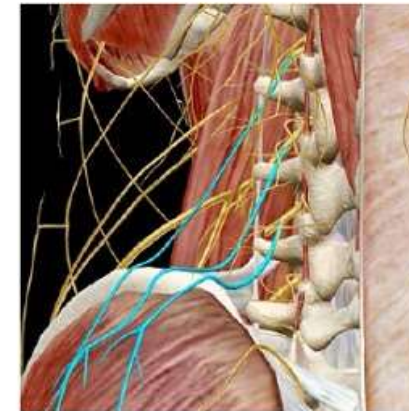
## VALLEIX POINT 1841 CHRONIC CONSTRICTION INJURY



where the nerve emerges from the bony canal



where it pierces a muscle or aponeurosis to reach the skin

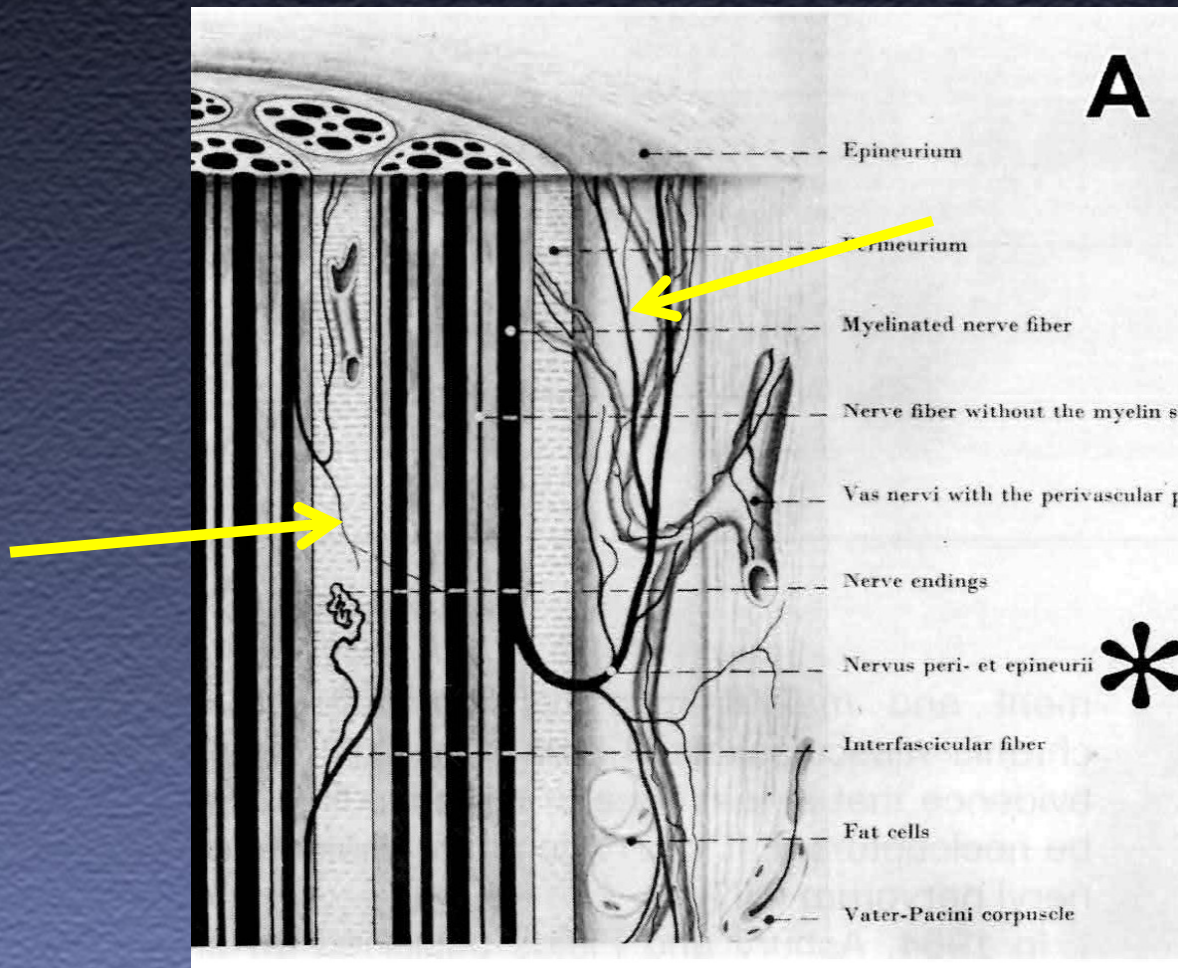


where a superficial nerve rests on a resisting surface where compression is easily made



Where it is entrapped b/w fibrous tissue

2. Stimulation des nervi nervorum (fibres C-TRPV1)  
=> douleur du nerf (potentiels d'action)  
=> œdème (libération SP et CGRP)



### 3. Oedème du nerf

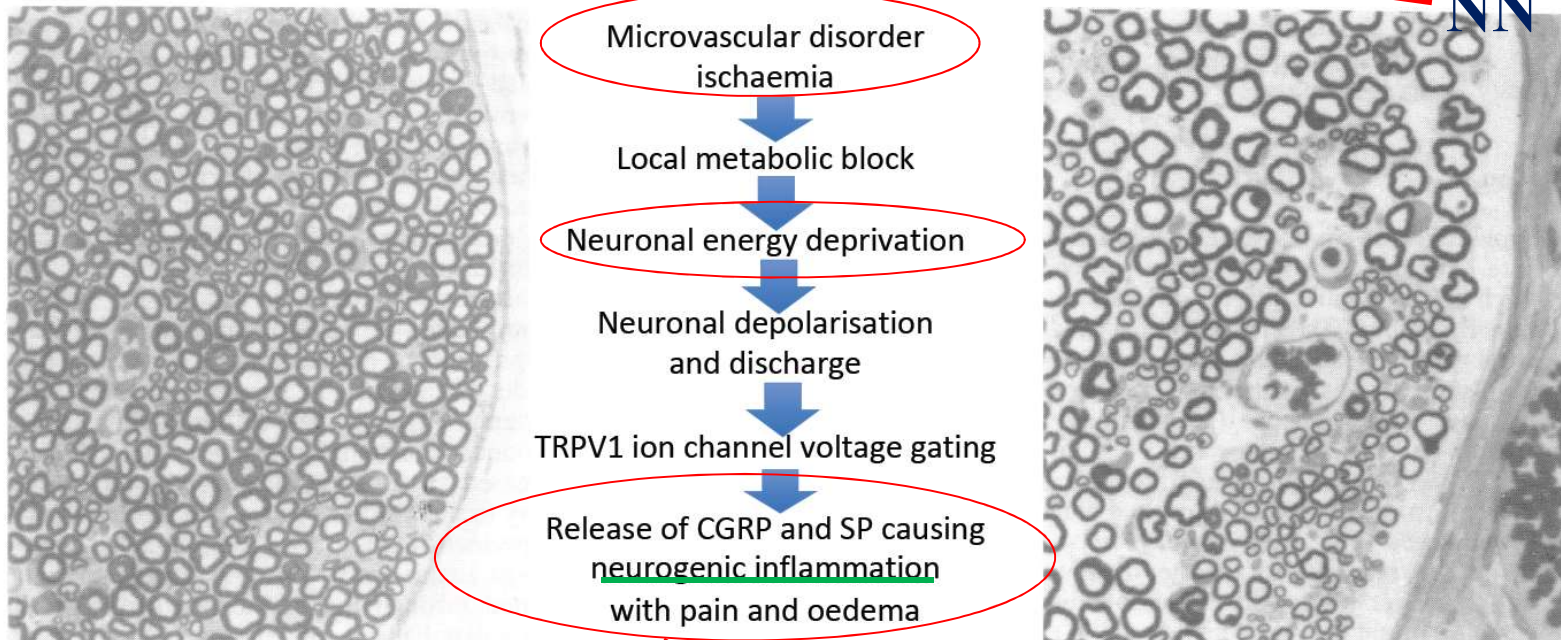
=> augmentation de la pression intra-neurale

Goran Lundborg, Robert Myers, Henry Powell

Nerve compression injury and increased endoneurial fluid pressure: "miniature compartment syndrome"

Journal of Neurology, Neurosurgery, and Psychiatry 1983;46:1119-1124

NN



Normal fascicle with tightly packed axons in close association with perineurium. (x 500)

Light micrograph of major fascicle from sciatic nerve of rat which was compressed at a pressure of 80 mm Hg for 4 hours. Extensive oedema in sub-perineurial and perivascular spaces. Oedema also separates nerve fibres. (x 500)

Organe cible: peau, muscle, articulation, organe

*Activation of C Fibers by Metabolic Perturbations  
Associated with Tourniquet Ischemia*

M. Bruce MacIver, M.Sc., Ph.D.,\* Darrell L. Tanellian, M.D., Ph.D.†

The mechanism whereby hypoglycemia or hypoxia result in C fiber activation can be answered by further study. However, it is known that depletion of glucose and O<sub>2</sub> result in reduction of high-energy substrates, such as ATP, necessary for enzymatic processes. During anaerobic metabolism, the breakdown of one molecule of glucose to lactate results in the production of two molecules of ATP as compared to 38 molecules of ATP during complete aerobic oxidation of glucose.<sup>18</sup> Anoxia *in vitro* results in

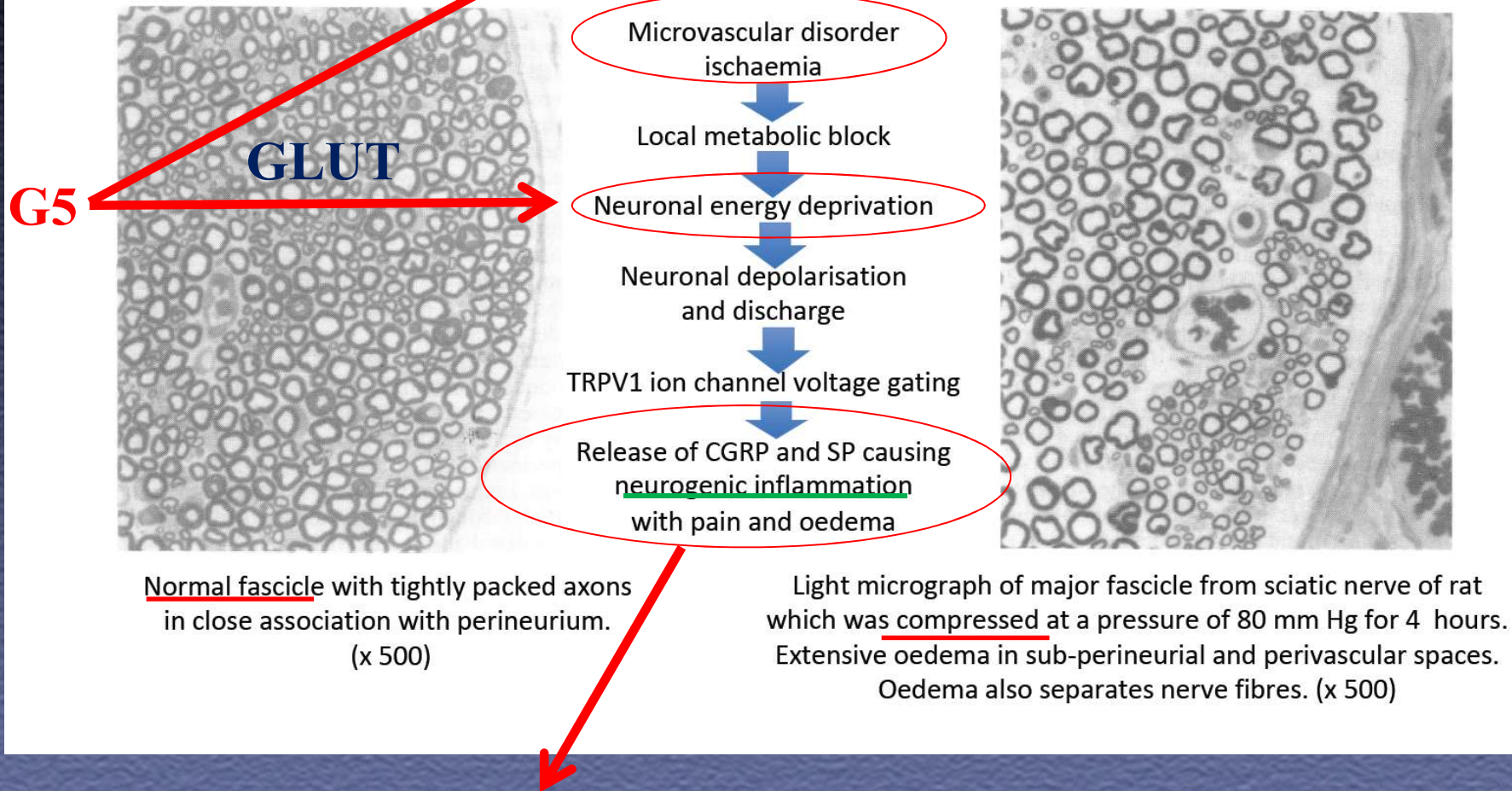


# Prolothérapie neurale: injection de G5 = « bypass »

Goran Lundborg, Robert Myers, Henry Powell

Nerve compression injury and increased endoneurial fluid pressure: a "miniature compartment syndrome"

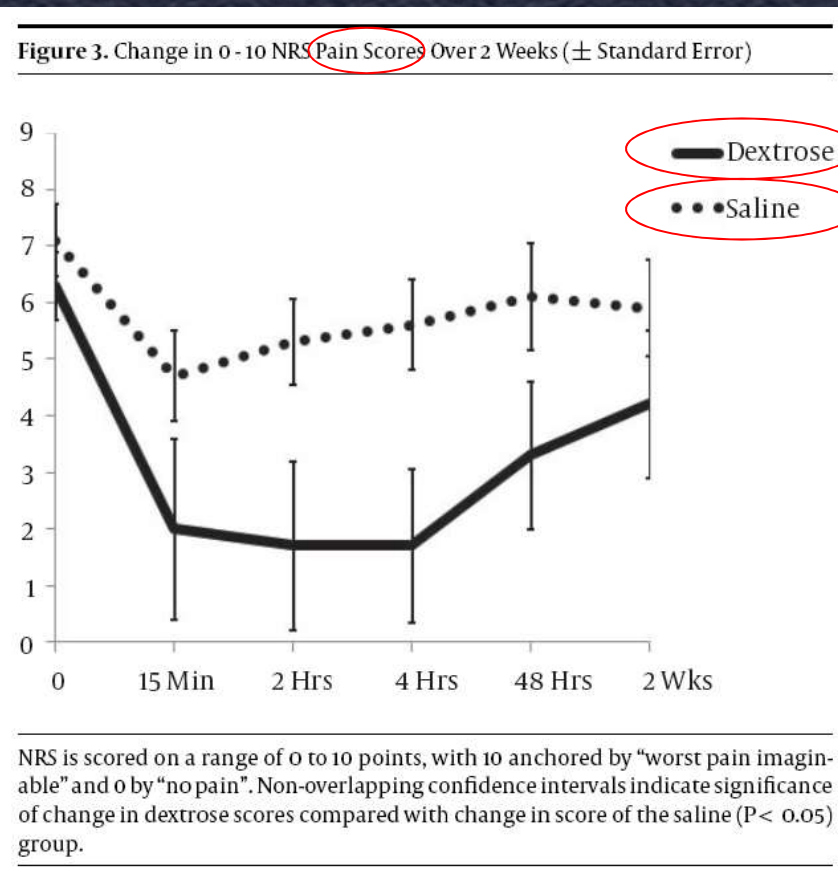
Journal of Neurology, Neurosurgery, and Psychiatry 1983;46:1119-1124



**Organe cible: peau, muscle, articulation, organe**

# Short Term Analgesic Effects of 5% Dextrose Epidural Injections for Chronic Low Back Pain: A Randomized Controlled Trial

Liza Maniquis-Smigel,<sup>1</sup> Kenneth Dean Reeves,<sup>2,\*</sup> Howard Jeffrey Rosen,<sup>3</sup> John Lyftogt,<sup>4</sup> Cassie Graham-Coleman,<sup>5</sup> An-Lin Cheng,<sup>6</sup> and David Rabago<sup>7</sup>



# Randomized Double-Blinded Clinical Trial of 5% Dextrose versus Triamcinolone Injection for Carpal Tunnel Syndrome Patients

Yung-Tsan Wu, MD,<sup>1,2</sup> Ming-Jen Ke, MD,<sup>1</sup> Tsung-Yen Ho, MD,<sup>1</sup> Tsung-Ying Li, MD,<sup>1,2</sup>  
Yu-Ping Shen, MD,<sup>1</sup> and Liang-Cheng Chen MD, MS<sup>1</sup>

**Results:** All patients (27 wrists per group) completed the study. Compared with the steroid group, the dextrose group exhibited a significant reduction in pain and disability through the 4th to the 6th month ( $p < 0.01$ ).

**Interpretation:** Our study demonstrates that perineural injection of D5W is more beneficial than that of corticosteroid in patients with mild-to-moderate CTS at 4 to 6 months postinjection.

ANN NEUROL 2018

# Periarticular dextrose prolotherapy instead of intra-articular injection for pain and functional improvement in knee osteoarthritis

This article was published in the following Dove Press journal:

Journal of Pain Research

17 May 2017

[Number of times this article has been viewed](#)

**Conclusion:** Periarticular prolotherapy has comparable effects on pain and disability due to knee OA to intra-articular injections, while avoiding risks of complications.

We inject buffered Dextrose 5% in sterile water (D5W)

near nerves in the **interstitium**

bypassing the **Blood Nerve Barrier**

correcting **neuronal energy deprivation**

“to help the progress of the nerve towards health”

## WHAT SOLUTION DO WE USE FOR PIT?

We use an isotonic dextrose solution (5%) in sterile water (D5W) injected near nerves in the interstitium

**DO NOT** use normal saline, lidocaine or corticosteroids



D5W comes in prepared bags, 100 ml, 250 ml, 500 ml, 1000 ml

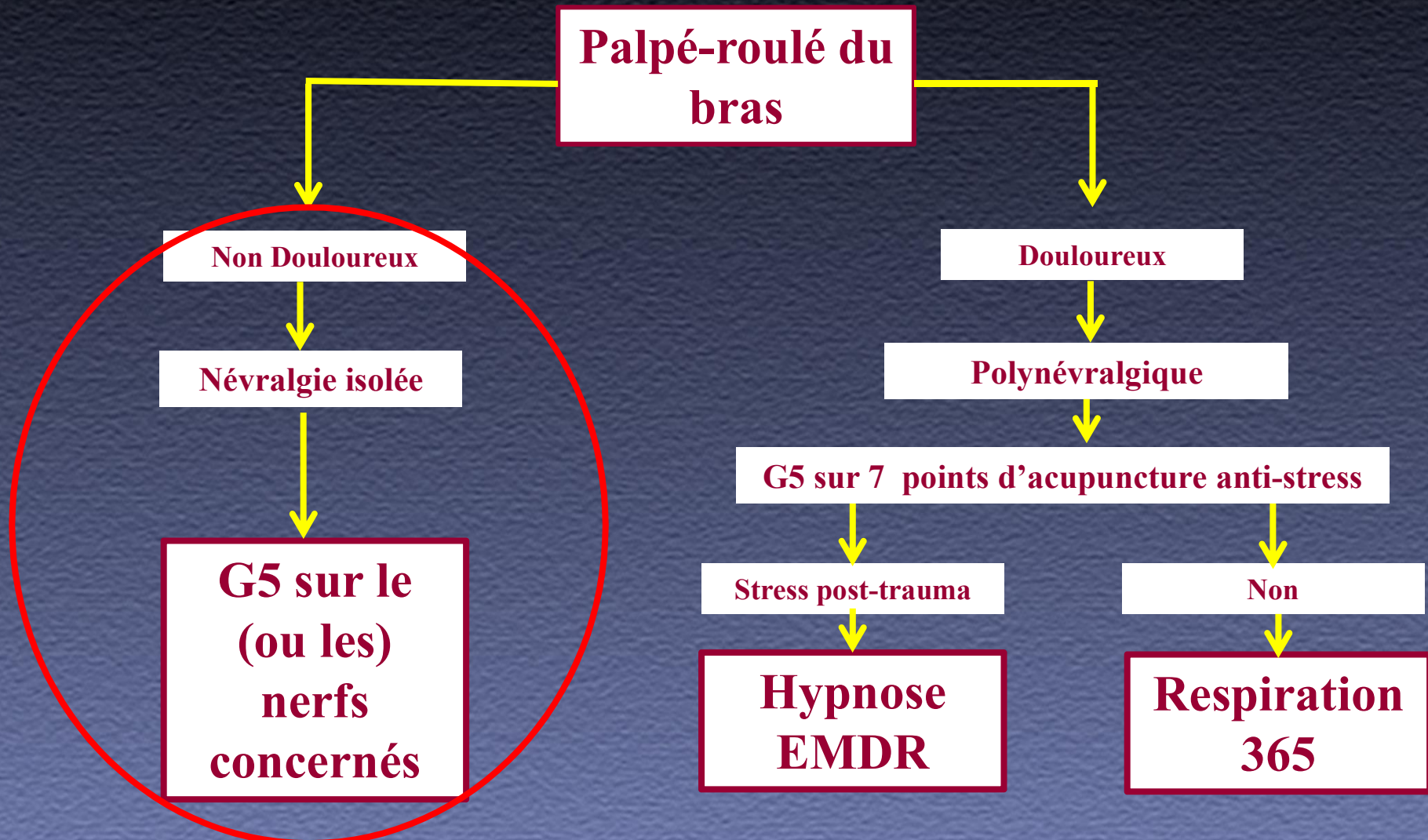
The pH is between 3.5- 5.6 and needs to be buffered to a **pH of 7.4**

Use 0.5 ml of Sod. Bicarb 8.4% for every 100 ml of D5W

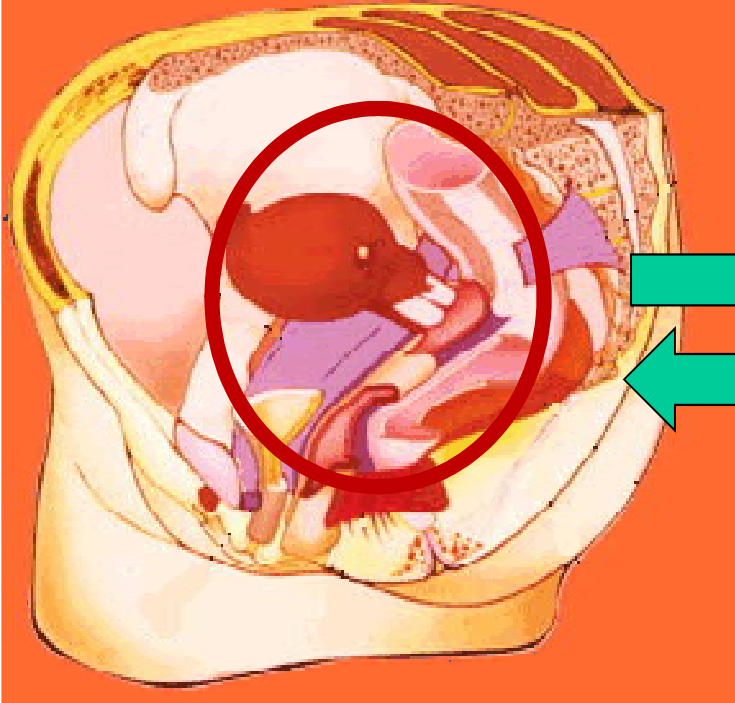
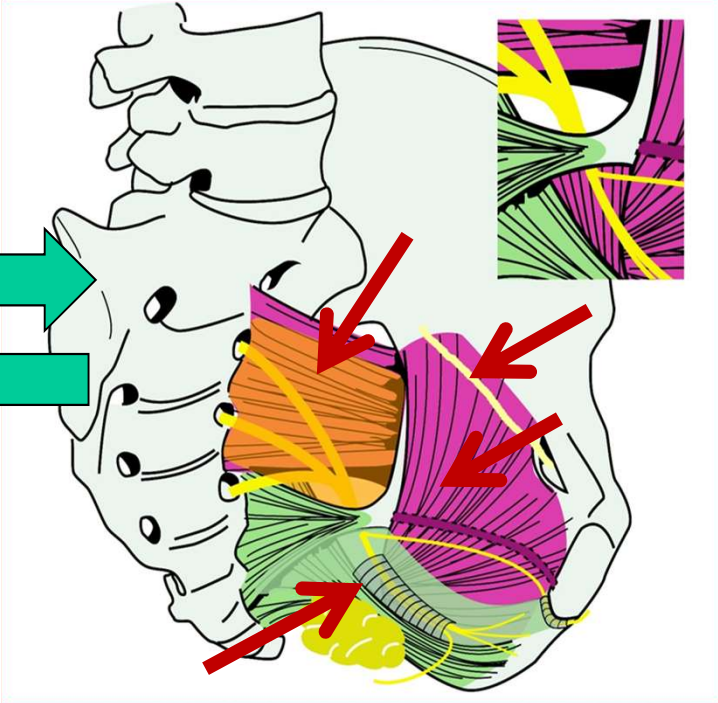
Check pH



# Névralgie isolée ou Polynévralgique



# Origine des symptômes: Organes ou muscles-nerfs ?

| Symptômes   | « Organique »<br>Le Contenu   | « Fonctionnelle »<br>Le Contenant  |
|---|---|--|
| Douleur périnéale<br>Cystite<br>Dyspareunie<br>Incontinence<br>Vaginite<br>Vulvite<br>Dyspareunie<br>Coccygodynie<br>Corps étranger<br>Proctalgie-SAS |  |  |

**Organes**

**Nerfs et Muscles**



# Nerfs impliqués dans les douleurs périnéales

## **Pudental - Obturateur**

Les autres:

Ilio-inguinal, génito-fémoral et ilio-hypogastrique

Clunéaux supérieurs, moyens, inférieurs

Racines sacrées (épidurale caudale = « sweet caudal »)

Ganglion impar

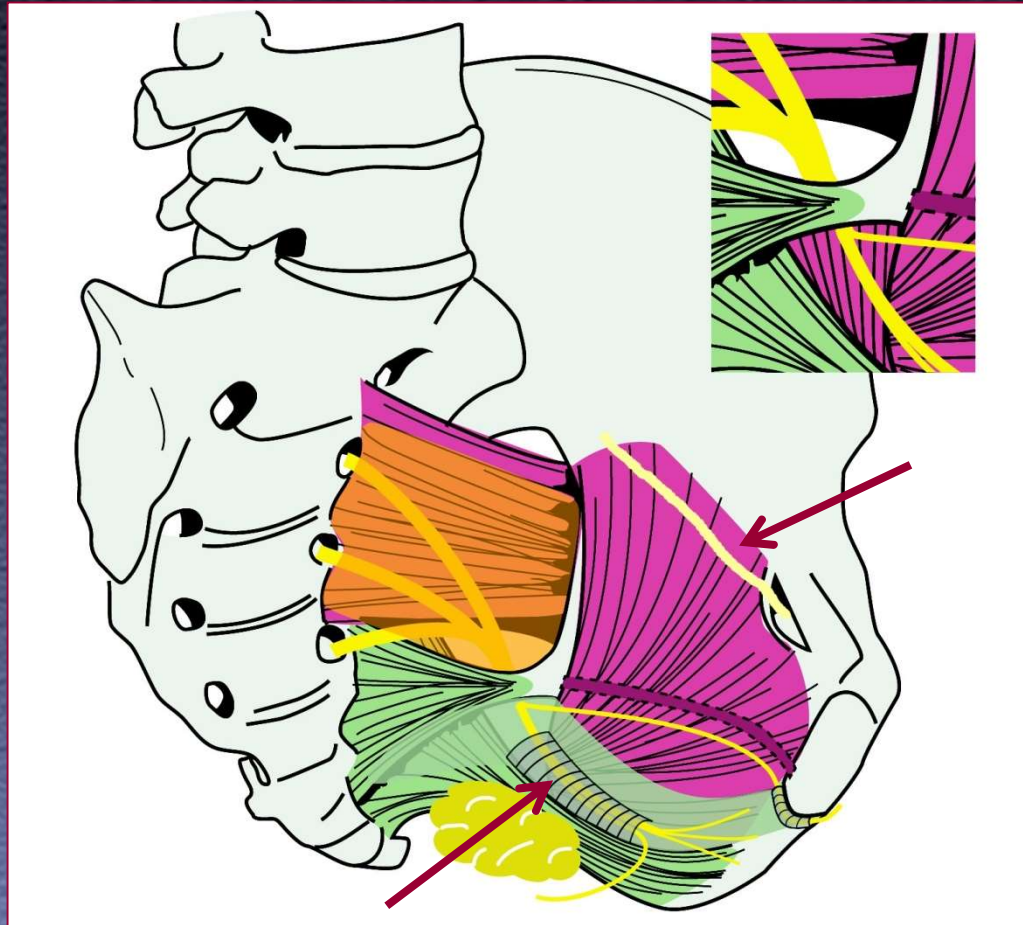
**et/ou**

**7 points d'acupuncture anti-stress**

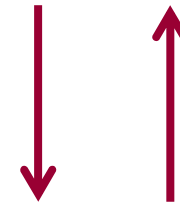
si palpé-roulé du bras douloureux

## Le trio infernal

Névralgies pudendales - Névralgies obturatrices  
Trigger points musculaires pelviens

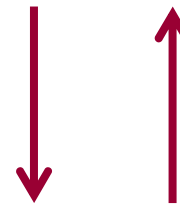


**Névralgies Pudendales**



« Trigger Points »

**Muscles Obturateurs**



**Névralgies Obturatrices**

# Névralgies pudendales et obturatrices

## Etiologies principales

| Etiologies   | Névralgies pudendales | Névralgies obturatrices |
|--|-----------------------|-------------------------|
| « Trigger points » musculaires (stress, inflammation organe, surcharge musculaire) | Oui                   | <u>Oui +++</u>          |
| Trauma du bassin   | <u>Oui +++</u>        | Oui                     |
| Accouchement   | Oui                   | <u>Oui +++</u>          |
| Vélo   | <u>Oui +++</u>        | Non                     |
| Chirurgie vaginale (position, valve, atteinte directe)                             | Oui                   | <u>Oui +++</u>          |
| Position assise prolongée  | <u>Oui +++</u>        | Non                     |
| Périnée descendant >2cm  | <u>Oui +++</u>        | Non                     |

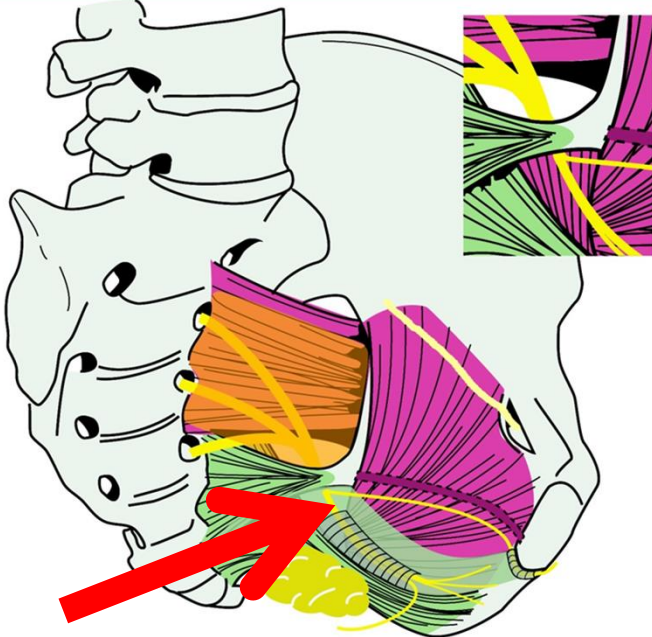
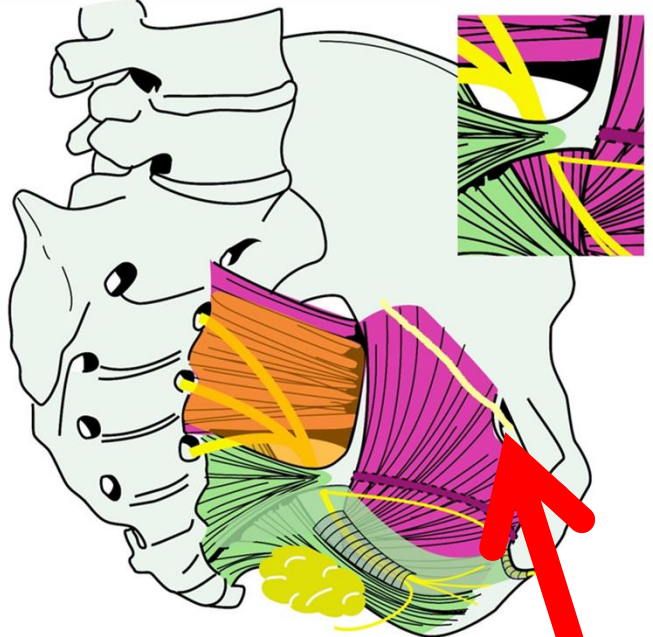
# Névralgies pudendales et obturatrices

## Symptômes

| Symptômes   | Névralgies Obturatrices | Névralgies Pudendales | Les deux |
|---|-------------------------|-----------------------|----------|
| Douleurs périnéales en position assise                                  |                         | X                     |          |
| Douleurs et/ou corps étranger intra-vaginaux                            | X                       |                       |          |
| Douleurs hypogastrique-genou-hanche                                     | X                       |                       |          |
| Sexual arousal syndrome – Proctalgies                                   |                         | X                     |          |
| Cystalgies- Dysurie<br>Pollakiurie-Nycturie-<br>Urgences - Incontinence |                         |                       | X        |
| Dyspareunie   |                         |                       | X        |
| Dyschésie   |                         |                       | X        |
| Prostatite abactérienne   |                         |                       | X        |





# Névralgies pudendales et obturatriques

## Examen clinique

| Signes cliniques                                    | Névralgie pudendale  | Névralgie obturatrice  |
|---|--|--|
| Douleur à la palpation par voie vaginale ou rectale |  <p data-bbox="808 1358 1061 1414">5 h et 7 h</p> |  <p data-bbox="1496 1358 1749 1414">3 h et 9 h</p> |

# Névralgies pudendales et obturatriques

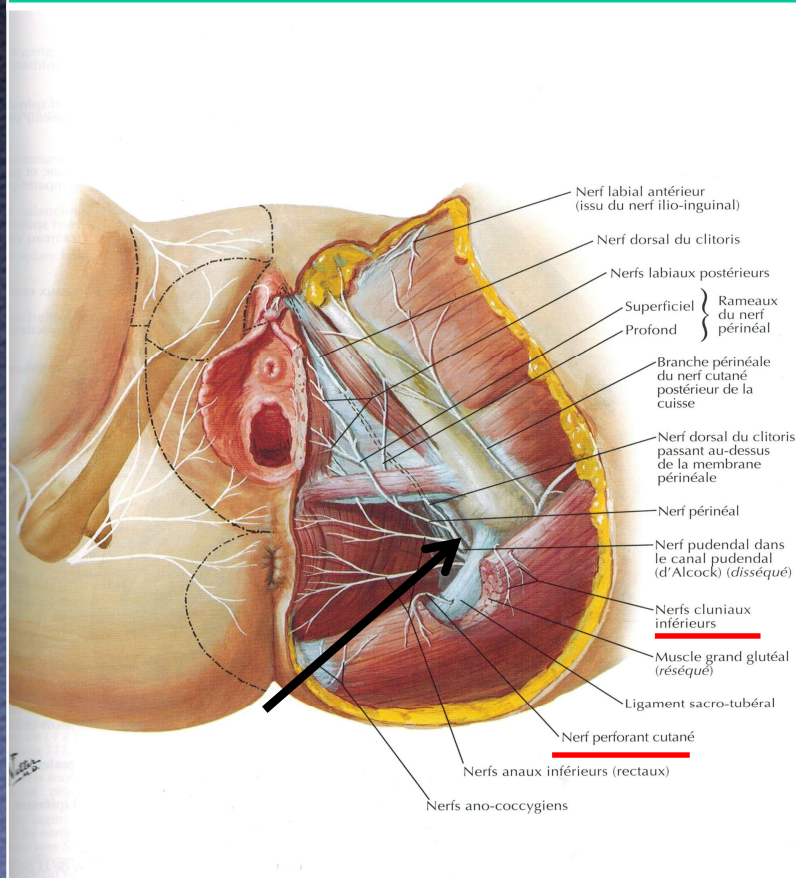
## Examen clinique

| Signes cliniques                             | Nevralgie pudendale   | Névralgie obturatrice<br>(80%)   |
|--|---|--|
| Palpé-Roulé douloureux                       |  <p>A photograph showing a person's buttock with a vertical surgical scar. Two hands in white gloves are palpating the area around the scar. A small yellow text 'Copyright GEP 2002' is visible at the bottom of the image.</p> |  <p>A photograph showing a person's thigh. Two hands in white gloves are palpating the area around the knee joint, specifically the obturator foramen. There are some blue markings on the skin.</p> |
| Hypo ou hyperesthésie<br>(aiguille ou autre) |  <p>A photograph showing a person's buttock with a vertical surgical scar. A hand in a white glove is using a needle to perform a sensory test on the skin around the scar.</p>   |  <p>A photograph showing a person's thigh. A hand in a white glove is using a needle to perform a sensory test on the skin around the knee joint. There are some blue markings on the skin.</p>     |

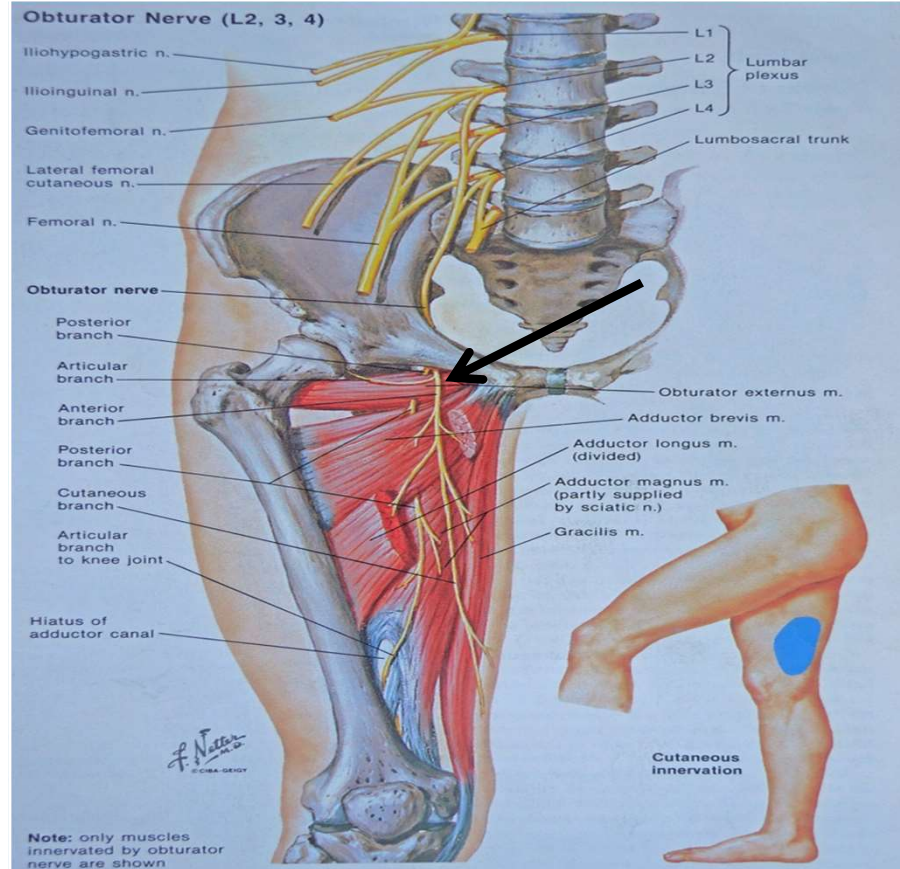
# Traitement curatif N°1:

Prolothérapie neurale (1 séance / 15j – 4 séances en moyenne)

## Nevralgie pudendale



## Névralgie obturatrice



En association avec:  
Protection du nerf pudendal

- Eviter le vélo
- Eviter de soulever des objets lourds en position accroupie
  
- Eviter la position assise prolongée et utiliser coussin =>



Coussin en forme de U  
=> ATE Ensival



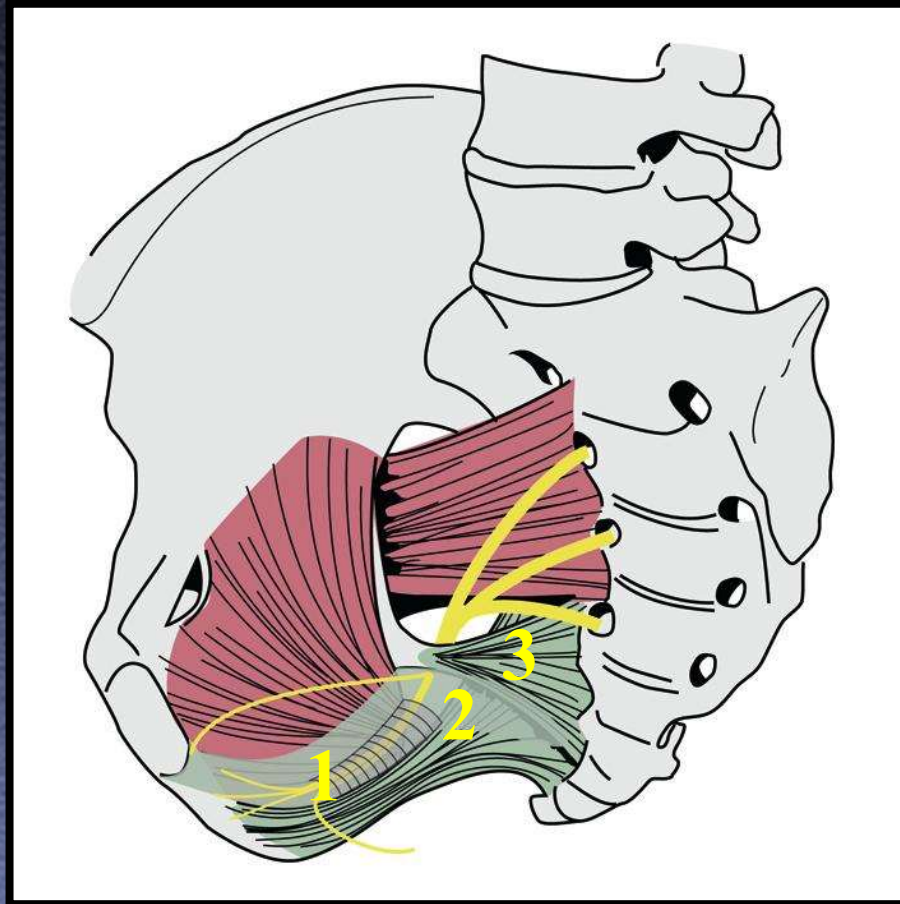
En cas d'échec:

Infiltrations du nerf pudendal sous scanner



Images du Dr JF Biquet , CHC Heusy

Et si nécessaire:  
Décompression chirurgicale du nerf  
pudendal

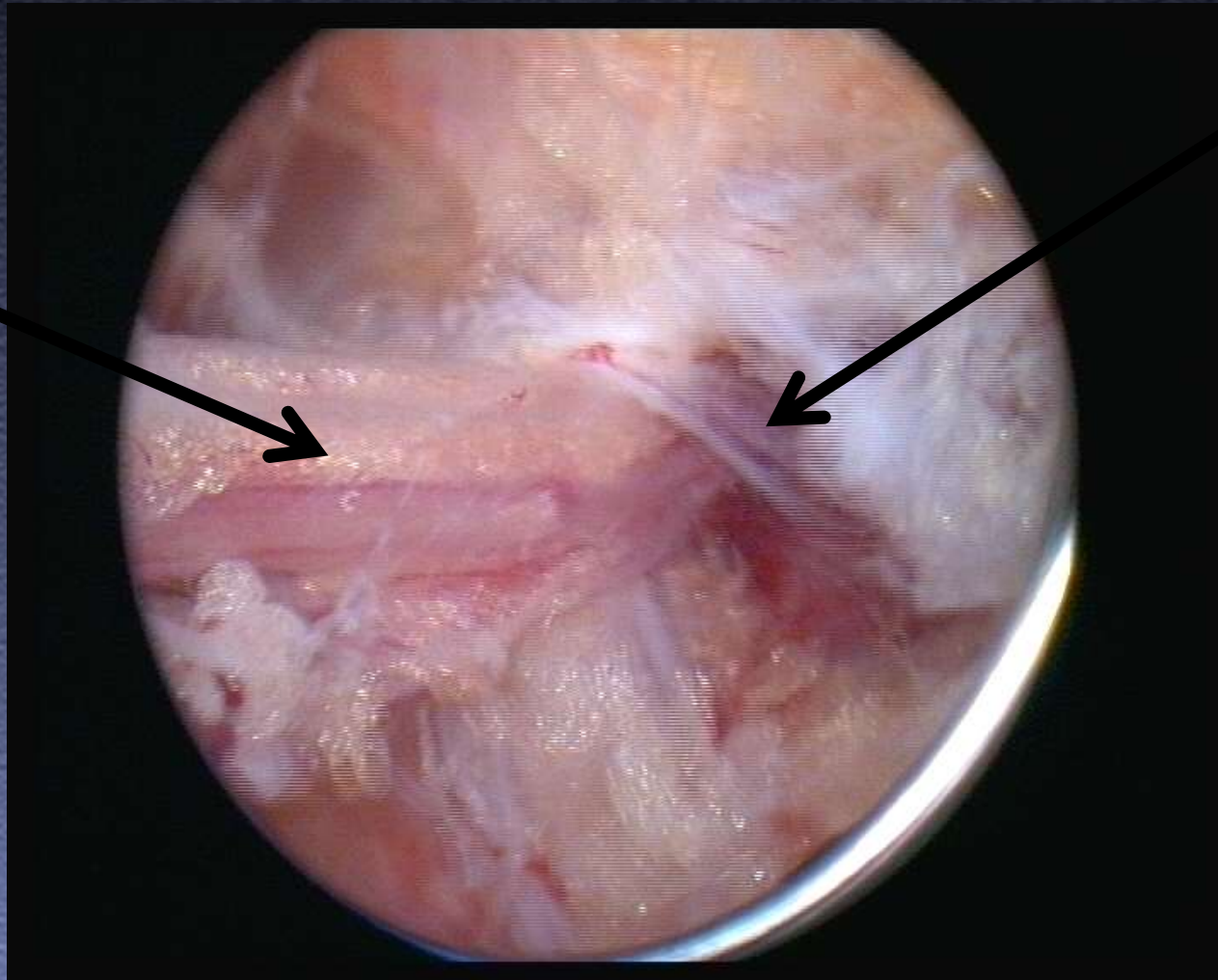


Release of the nerve from  
the sacral roots to the  
transverse muscle

1. Alcock's canal: perineal and rectal branches
2. *Fascia lunata*
3. Sacrospinous ligament
4. Nerves through the ligament ?
5. Transposition of the nerve

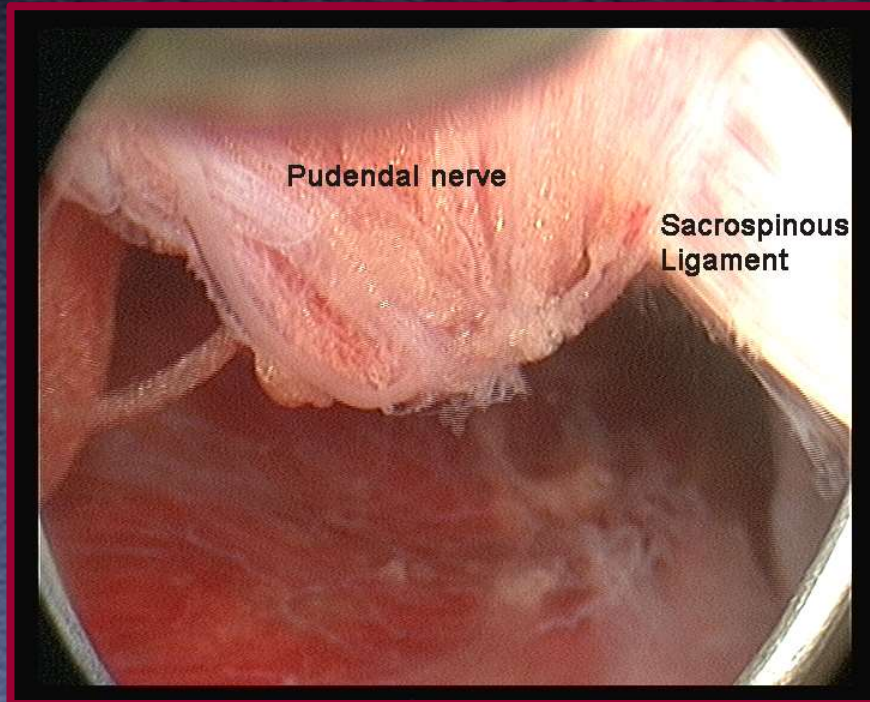
# Pudendoscopy: Alcock's canal

**Pudental  
Nerve**

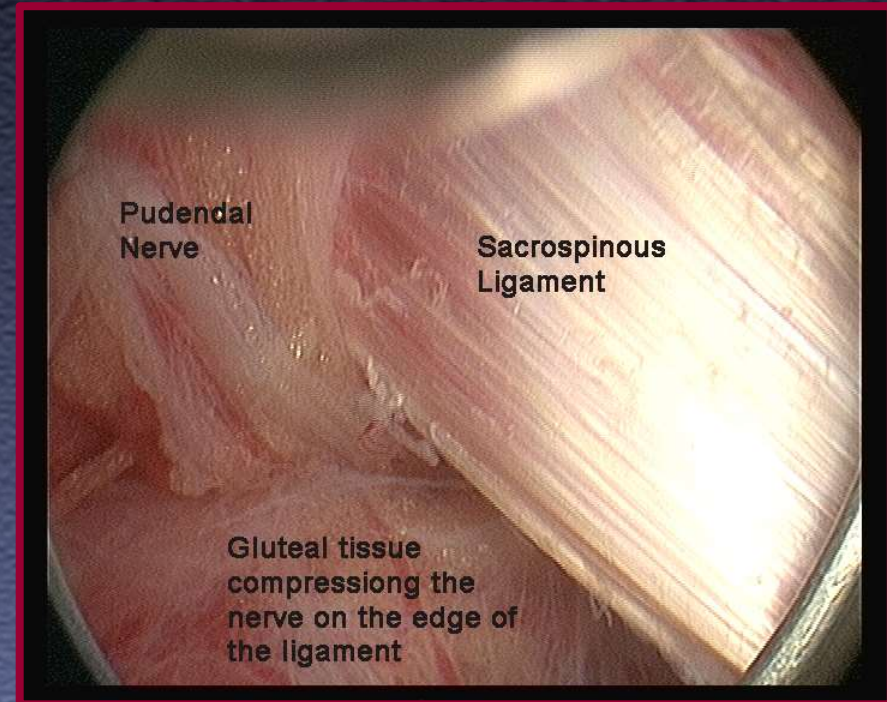


**Alcock's  
Canal**

# Operative Pudendoscscopy



**Debout**



**Assis**



**Endoscopic transperineal pudendal nerve decompression: operative pudendoscopy**

Jacques Beco<sup>1,4</sup> · Laurence Seidel<sup>2</sup> · Adelin Albert<sup>3</sup>

**Table 1** Effect on the symptoms of the pudendal syndrome (*n* = 113)

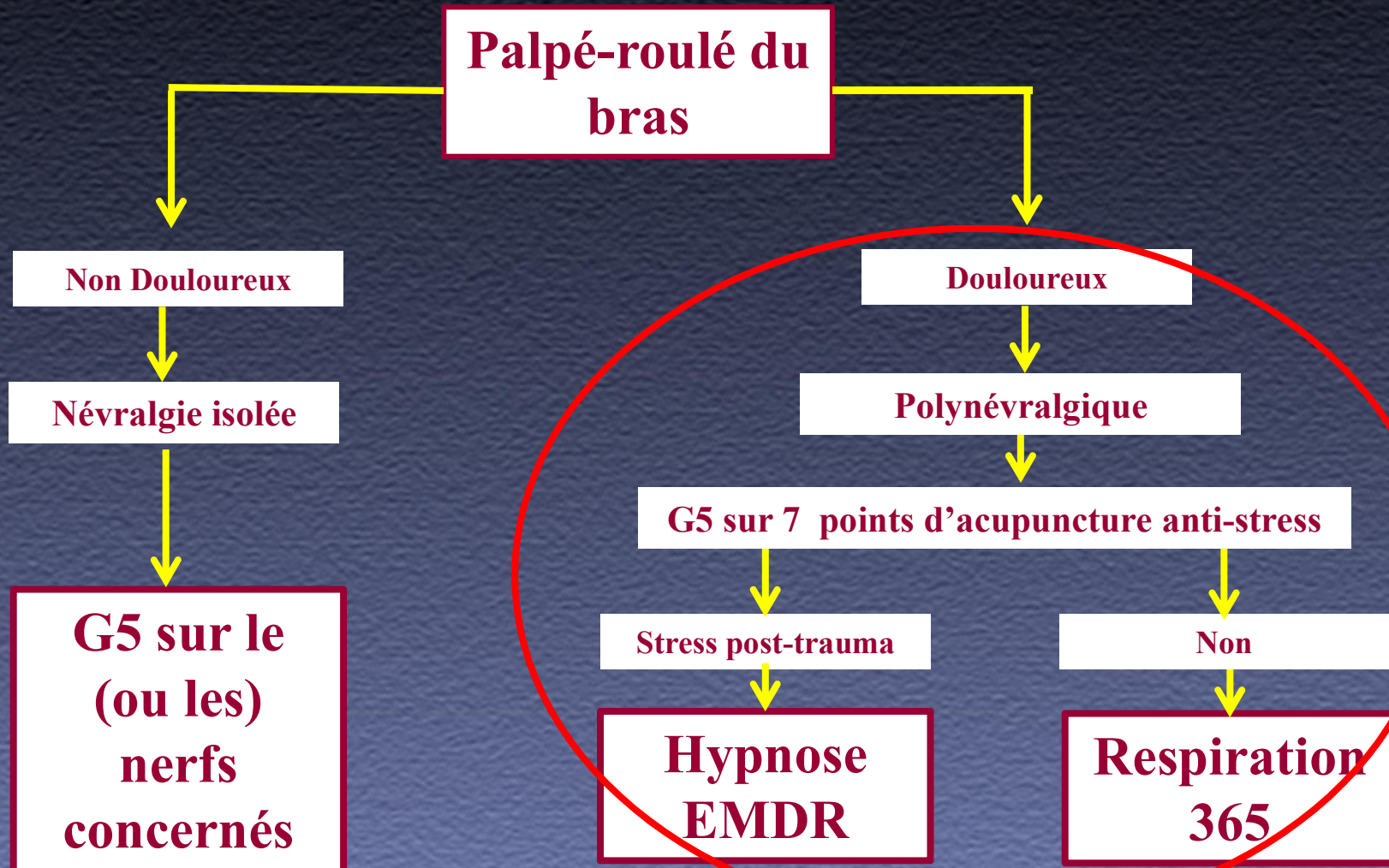
| Parameter                                    | <i>N</i> | Before surgery | After surgery | <i>p</i> Value |
|--|----------|----------------|---------------|----------------|
| Stress urinary incontinence (%) <sup>a</sup> | 113      | 13 (11.5)      | 6 (5.3)       | 0.020          |
| Urge urinary incontinence (%) <sup>a</sup>   | 113      | 10 (8.8)       | 3 (2.7)       | 0.0082         |
| Urinary frequency (min) <sup>b</sup>         | 113      | 113 ± 59.8     | 142 ± 67.1    | <0.0001        |
| Nocturia                                     | 110      | 1.3 ± 1.6      | 0.9 ± 1.2     | 0.0007         |
| Dysuria (%)                                  | 112      | 45 (40.2)      | 34 (30.4)     | 0.034          |
| Cystalgia (%)                                | 112      | 44 (39.3)      | 29 (25.9)     | 0.014          |
| ICIQ-SF (/21)                                | 113      | 4.0 ± 5.2      | 2.7 ± 4.3     | 0.0011         |
| Perineodynia (/10)                           | 113      | 7.2 ± 1.4      | 4.5 ± 2.9     | <0.0001        |
| NHI-CPSI (/44)                               | 113      | 31.6 ± 5.3     | 21.3 ± 10.8   | <0.0001        |
| Impotence (%) ( <i>n</i> = 23 men)           | 21       | 9 (42.9)       | 7 (33.3)      | 0.48           |
| Sexual arousal syndrome (%)                  | 113      | 34 (30.1)      | 14 (12.4)     | <0.0001        |
| Dyspareunia (%) ( <i>n</i> = 90 women)       | 83       | 34 (41.0)      | 14 (16.9)     | <0.0001        |
| Anal incontinence (%) <sup>c</sup>           | 113      | 56 (49.6)      | 42 (37.2)     | 0.016          |
| St Marks score (/24)                         | 113      | 4.9 ± 4.7      | 3.1 ± 4.2     | <0.0001        |
| Proctalgia fugax (%)                         | 111      | 39 (35.1)      | 31 (27.9)     | 0.16           |
| Dyschesia (%)                                | 94       | 45 (47.8)      | 28 (30.0)     | 0.0011         |
| Wexner score (/30)                           | 113      | 8.9 ± 5.5      | 7.0 ± 5.5     | <0.0001        |

<sup>a</sup>Moderate or severe

<sup>b</sup>Average time between two micturition

<sup>c</sup>All types (gas, liquid, and solid)

# Névralgie isolée ou « Polynévralgique »



A new method to evaluate the part of stress in pain: injection of dextrose 5% (neural prolotherapy) on acupuncture points corresponding to the stellate, coeliac and mesenteric ganglions.  
A pilot study

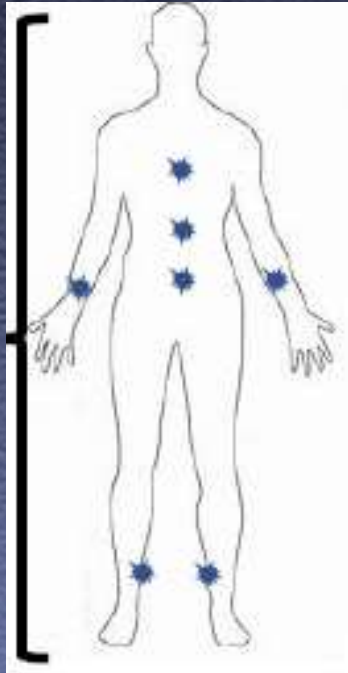
JACQUES BECO<sup>1</sup>, JACK MOUCHEL<sup>2</sup>, LAURENCE SEIDEL<sup>3</sup>, ADELIN ALBERT<sup>3,4</sup>

<sup>1</sup> Department of Gynecology and Obstetrics, University Hospital of Liège, Liège, Belgium

<sup>2</sup> Avenue d'Haouza, Le Mans, France

<sup>3</sup> Biostatistics, University Hospital of Liège, Liège, Belgium

<sup>4</sup> Department of Public Health Sciences, University of Liège, Liège, Belgium



- SP 6 x 2 : chevilles
- CV 6 : sous-ombilical
- CV 12 : sus-ombilical
- PC 6 x 2 : poignets
- CV 17 : sternum

# Score de bien-être de l'OMS

TABLE 1. WHO score before and 14 days after treatment (N=55).

| WHO index          | Before injection<br>Mean $\pm$ SD | After injection<br>Mean $\pm$ SD | P-value |
|--------------------|-----------------------------------|----------------------------------|---------|
| Item 1 (/5)        | 2.1 $\pm$ 1.1                     | 3.0 $\pm$ 1.2                    | <0.0001 |
| Item 2 (/5)        | 1.7 $\pm$ 1.2                     | 3.0 $\pm$ 1.2                    | <0.0001 |
| Item 3 (/5)        | 1.6 $\pm$ 1.3                     | 2.8 $\pm$ 1.3                    | <0.0001 |
| Item 4 (/5)        | 1.3 $\pm$ 1.2                     | 2.6 $\pm$ 1.4                    | <0.0001 |
| Item 5 (/5)        | 2.5 $\pm$ 1.5                     | 3.0 $\pm$ 1.3                    | 0.0036  |
| Total score (/100) | 36.8 $\pm$ 18.1                   | 57.8 $\pm$ 22.2                  | <0.0001 |

WHO-1: I have felt cheerful and in good spirits; WHO-2: I have felt calm and relaxed; WHO-3: I have felt active and vigorous; WHO-4: I woke up feeling fresh and rested; WHO-5: My daily life has been filled with things that interest me.



# Autres effets

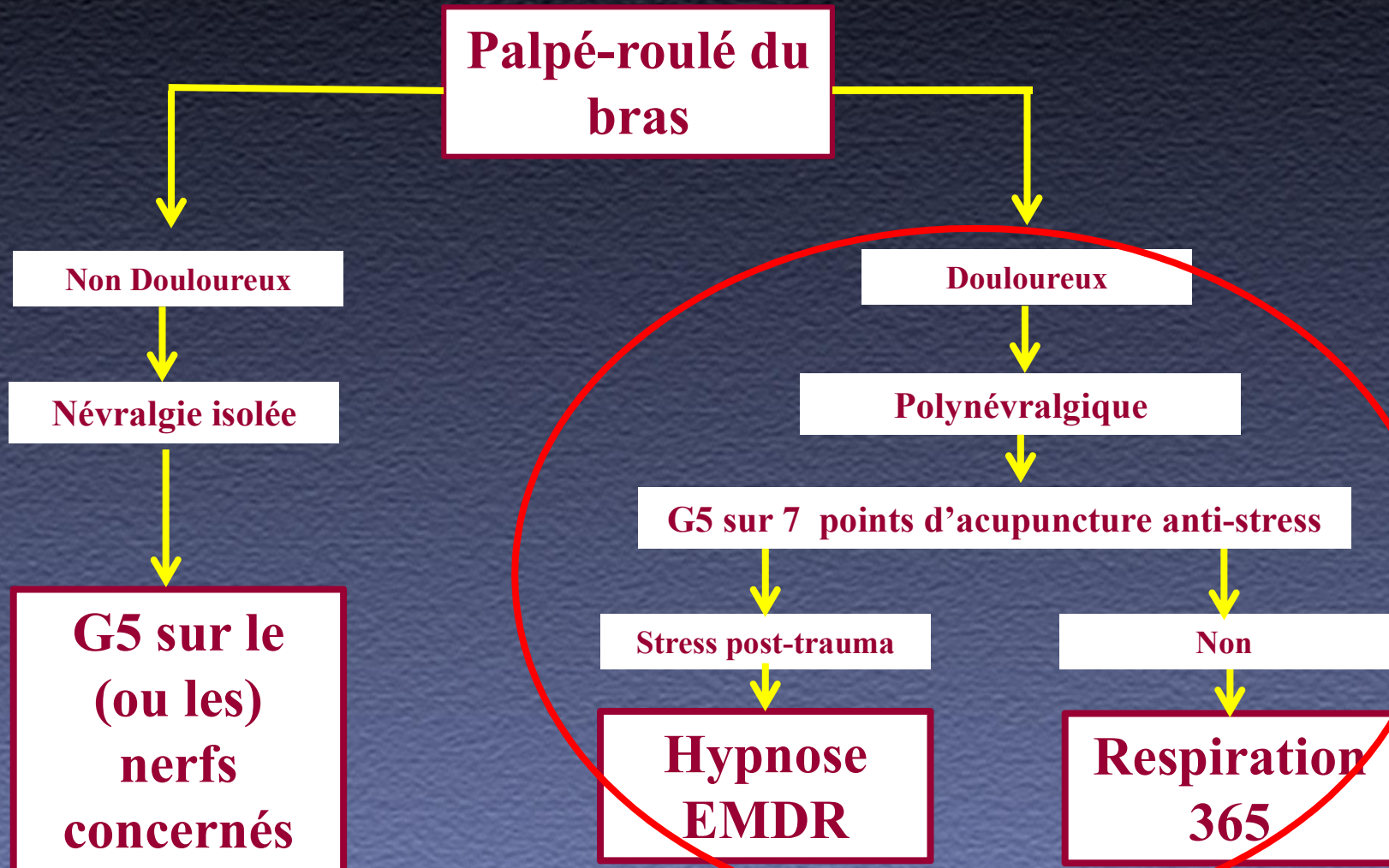
## **Douleur au Palpé-Roulé du bras (avant et 15 min après)**

7.1 ± 1.5 to 4.2 ± 1.9 (p<0.0001)

## **Score de douleur global (avant et 15 jours après)**

6.0 ± 2.1 before vs. 4.1 ± 2.5 after; p<0.0001

# Névralgie isolée ou « Polynévralgique »



*International*  
**Neural  
Prolotherapy**  
World Workshop

*May 9-12, 2014*

*Ferrara, Italy*

PROLO (M)  
Società Italiana di Proloterapia  
Ferrara 2014

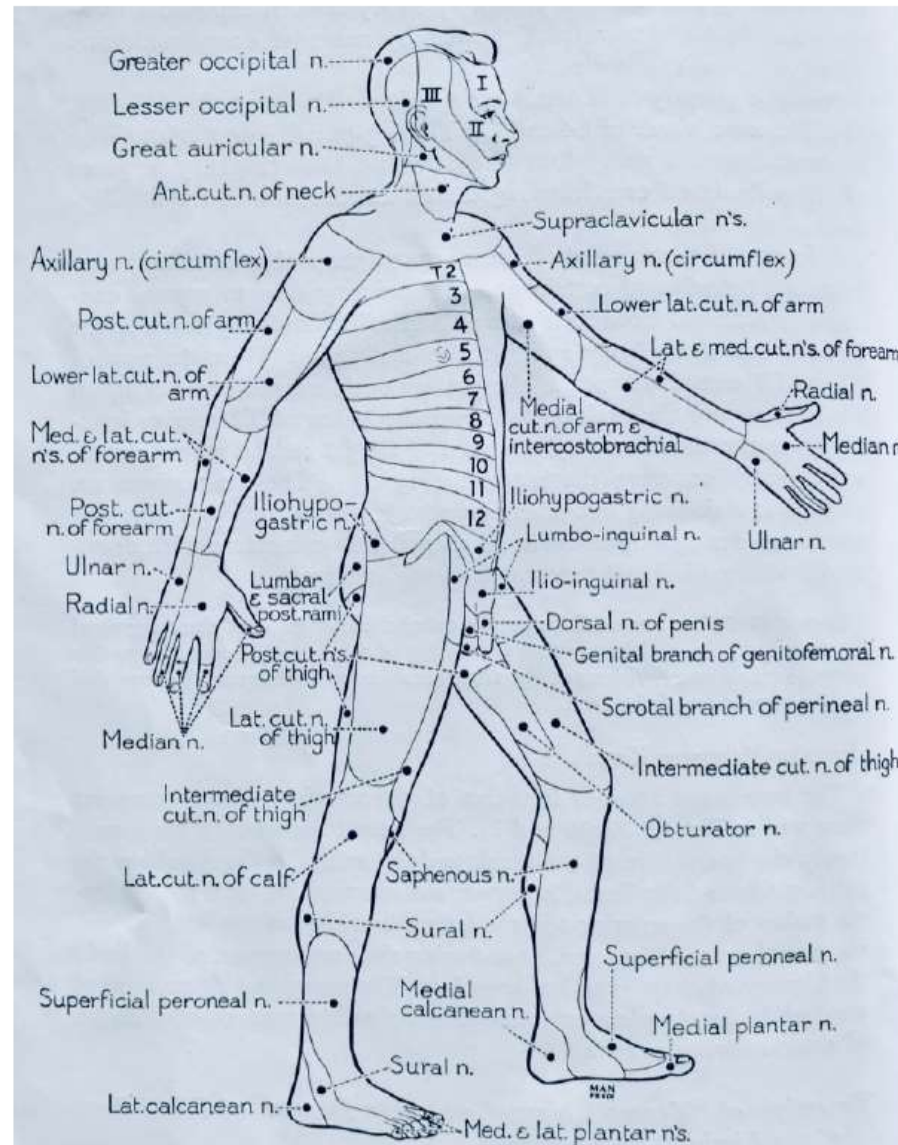
Dr. Stephen Cavallini  
Director SPRO Ita

PROLO (M)  
Società Italiana di Proloterapia  
Ferrara 2014

PROLO (M)  
NEURAL PROLOTHESIS



## Anatomical fields according to Haymaker and Woodall Peripheral Nerve Injuries 2<sup>nd</sup> Edition 1953



# A retenir !!

1. En cas de douleur ou de trouble fonctionnel pelvien (idem ailleurs) => penser névralgie !!
2. Utiliser le palpé-roulé pour confirmer le diagnostic
3. Injection sous-cutanée de glucosé 5% (seringue 10ml - aiguille 27G) => guérir votre patient(e) sans risque (efficacité 80%; 4 séances en moyenne)
4. Palpé-roulé du bras très douloureux !!! => syndrome de stress post-traumatique
5. L'injection de G5 dans 7 points anti-stress => soulagement instantané du stress et des douleurs

**A vous de jouer !!**