

# *Limitations of the new definition of neuropathic pain*

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## *Current Definition*

*Pain initiated or caused by a primary lesion or **dysfunction** in the nervous system*

*Bennett GJ: Neuropathic Pain: A Crisis of definition. Anesth Analg (2003)*

*Backonja MM: Defining Neuropathic pain. Anesth Analg (2003)*

*Hansson P: Difficulties in stratifying neuropathic pain by mechanisms. Eur J Pain (2003)*

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# *Large variety of etiologies*



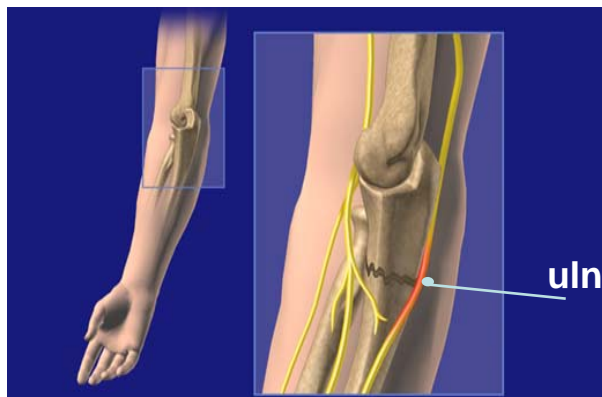
**Shingles**



**Syringomyelia**



**Radiculopathy**

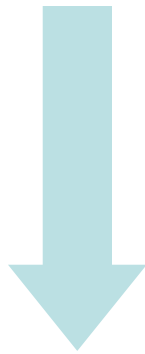


**Trauma**



**Surgery**

*Diagnostic Strategies for NeP*



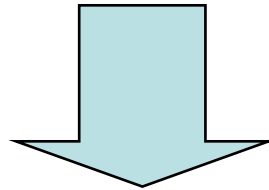
Diagnosis based on  
Symptoms  
(pain descriptors)



Diagnosis based on  
Signs  
(lesion/topography)

## *New Definition*

*Pain initiated or caused by a primary  
lesion or ~~dysfunction~~ in the nervous  
system (IASP, 1994)*



*Pain arising as a direct consequence of  
a lesion or disease affecting the  
somatosensory system (Treede et al., Neurology 2008)*

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## *What is a disease ?*

### *Oxford dictionary*

Disorder of structure or function in a human, animal, or plant, esp. one that produces specific signs or symptoms

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## *What is the somatosensory system ?*

The complex of sensations that arise from the skin and body. These sensations include the sense of pressure (light and deep), temperature, pain ...

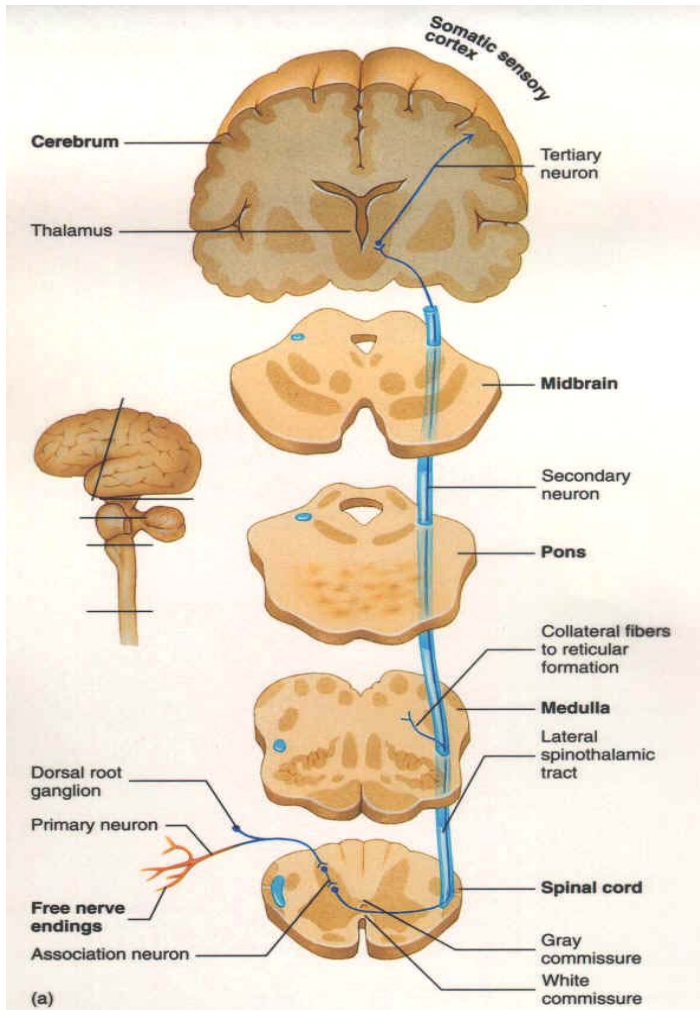
The components of the central and peripheral nervous systems that process information about the muscles, pain, temperature, pressure and joint position.

Somatic sensation consists of the various sensory receptors that trigger the experiences labelled as touch or pressure, temperature (warm or cold), pain (including itch and tickle), and the sensations of muscle movement and joint position including posture, movement, and facial expression ...

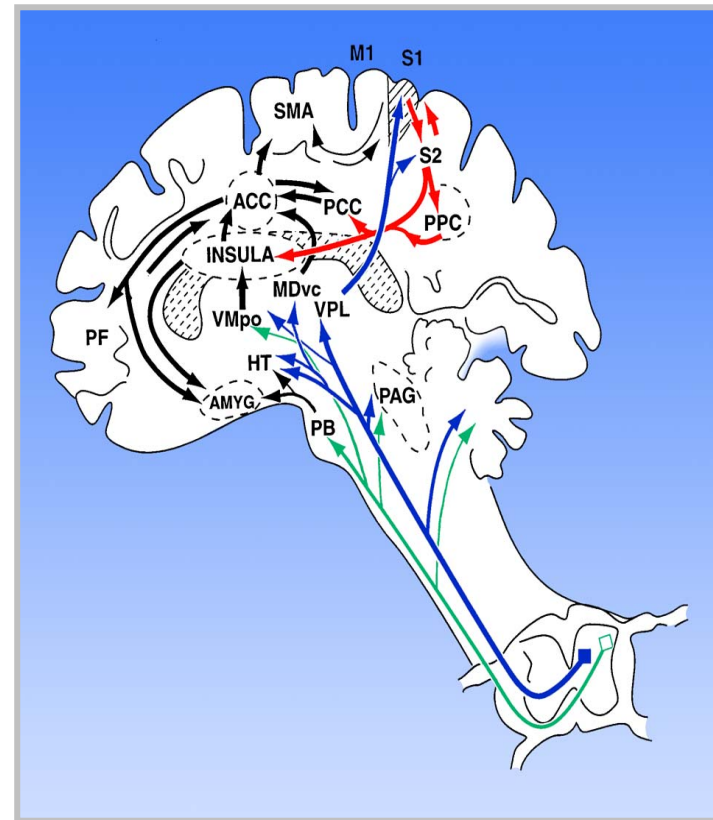
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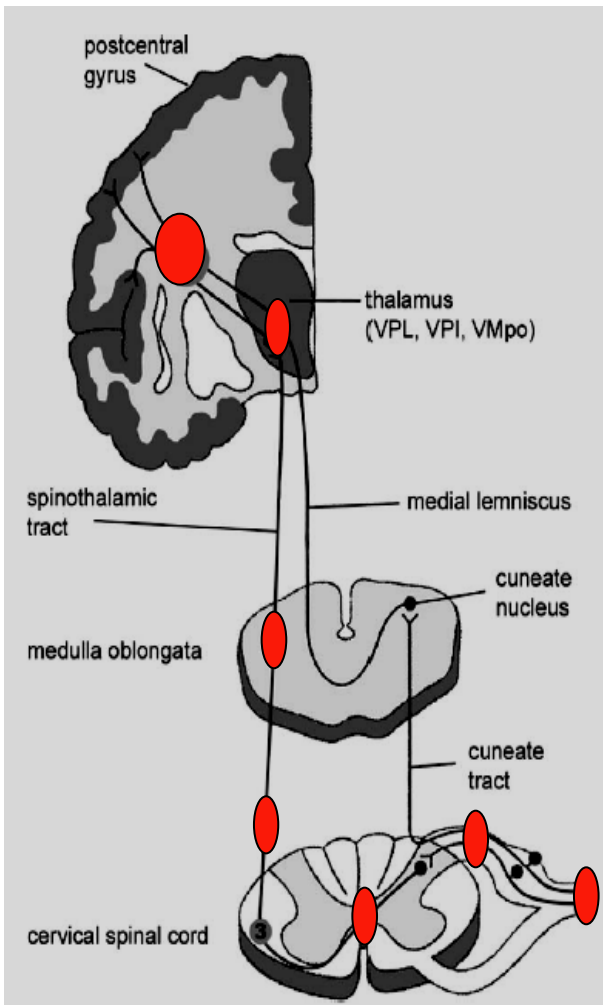
# *Nociceptive systems*



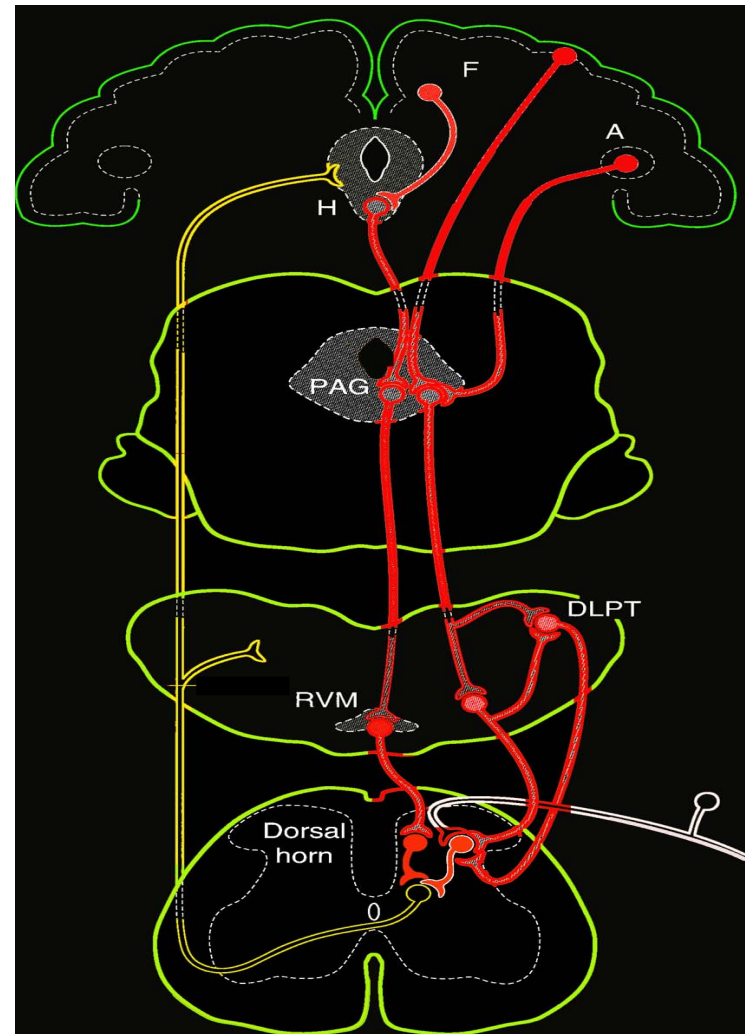
*Classical neurology textbook*



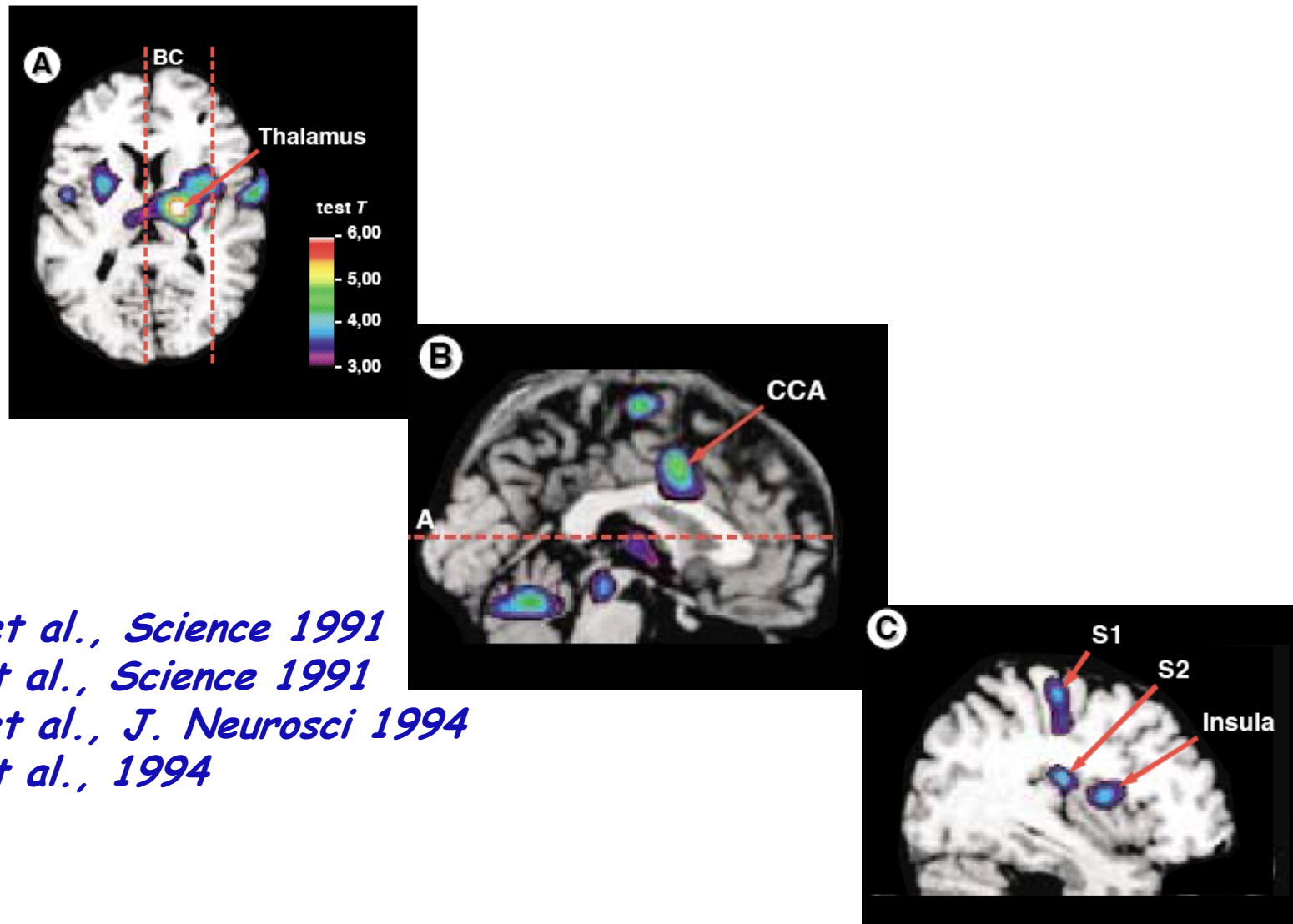
*Price et al., Science 2000*



*Treede, Lorenz & Baumgartner,  
Neurophysiol Clin 2003*



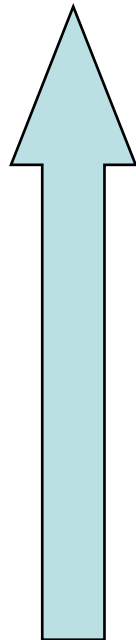
*Basbaum and Fields, 1979*



*Talbot et al., Science 1991*  
*Jones et al., Science 1991*  
*Coghill et al., J. Neurosci 1994*  
*Casey et al., 1994*

## *New Classification of neuropathic pain*

*Definite NP*  
*Probable NP*  
*Possible NP*  
*Unlikely*



*Level of certainty  
about the presence  
of a nerve  
lesion*

*Treede et al. 2008*

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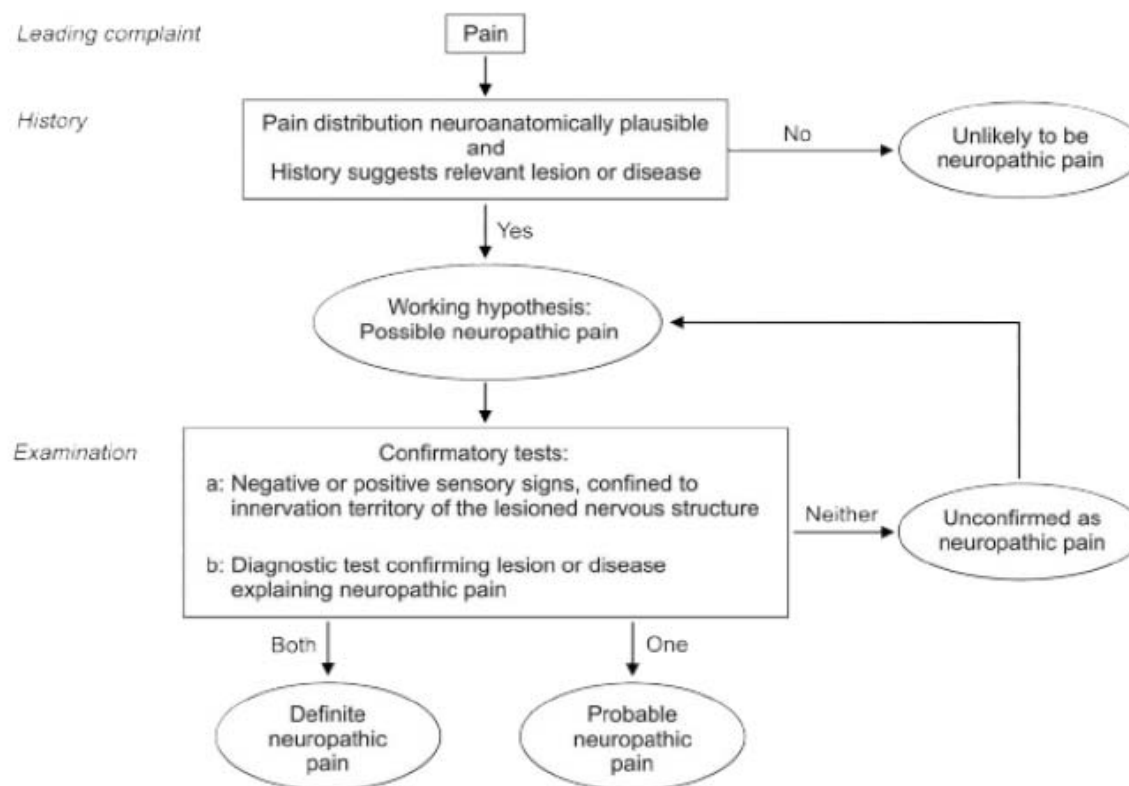
**Table** Grading system for neuropathic pain

Criteria to be evaluated for each patient

1. Pain with a distinct neuroanatomically plausible distribution\*
2. A history suggestive of a relevant lesion or disease affecting the peripheral or central somatosensory system†
3. Demonstration of the distinct neuroanatomically plausible distribution by at least one confirmatory test†
4. Demonstration of the relevant lesion or disease by at least one confirmatory test§

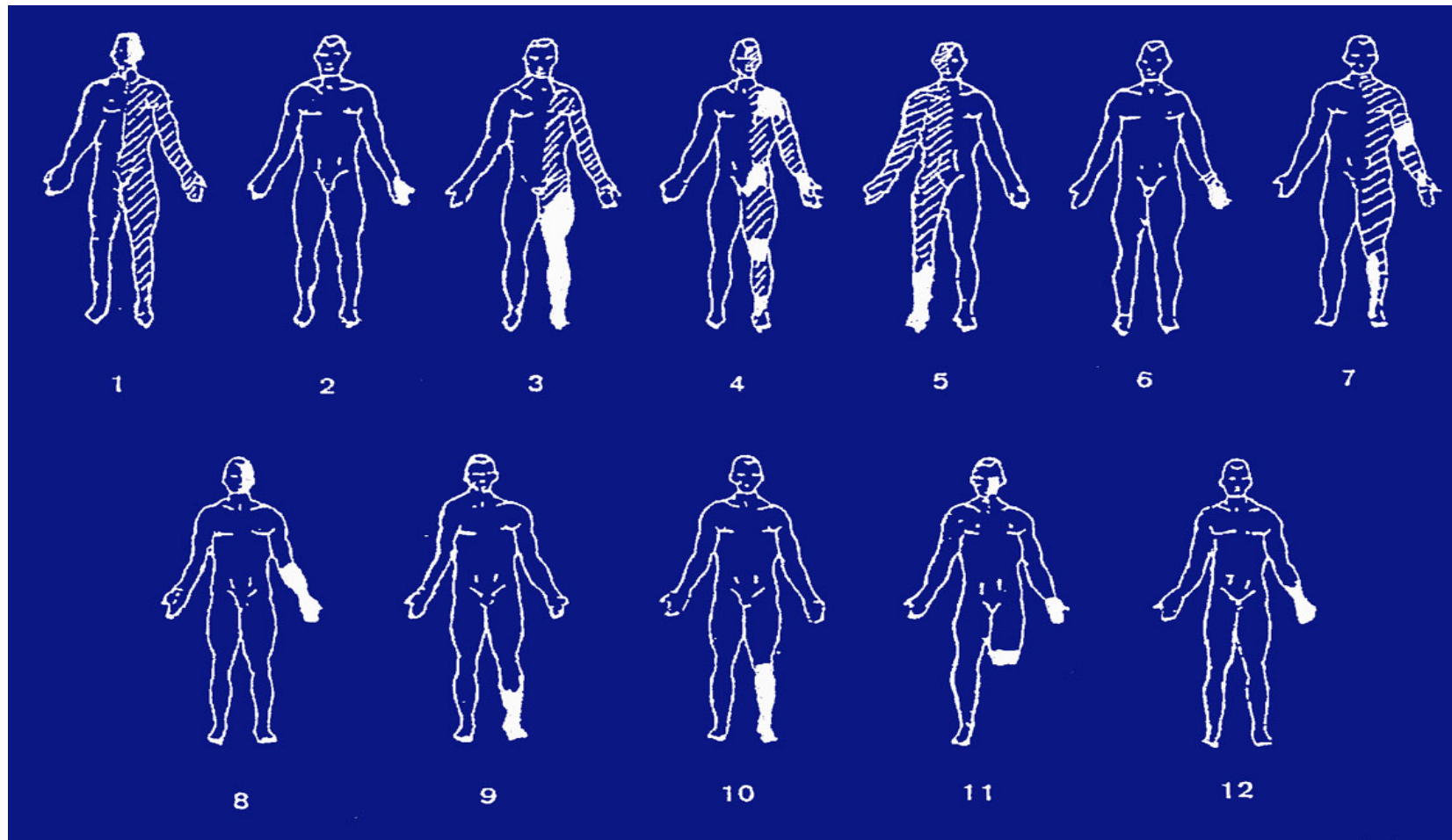
*(Treede et al., Neurology 2008)*

**Figure** Flow chart of grading system for neuropathic pain



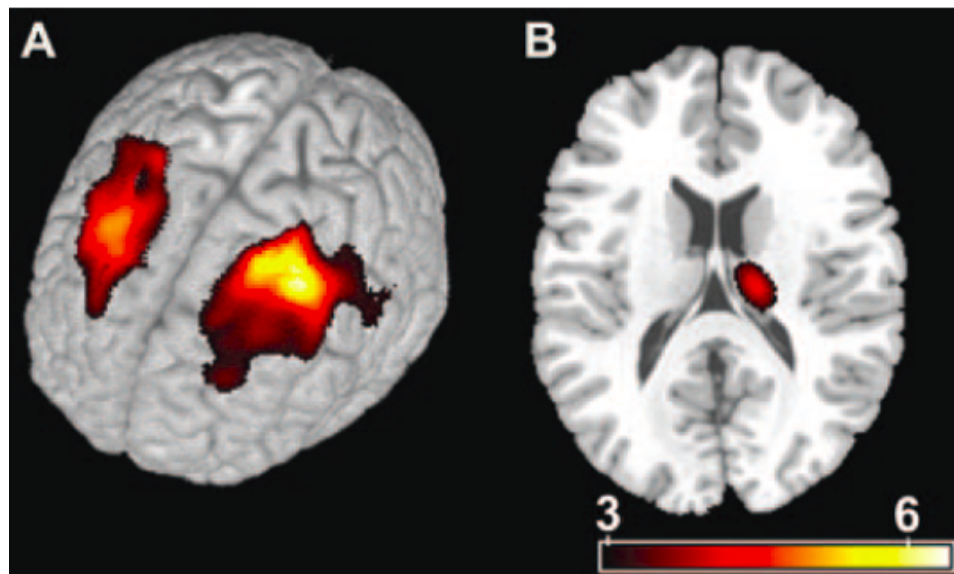
*(Treede et al., Neurology 2008)*

## *What is a neuro-anatomically plausible distribution ?*

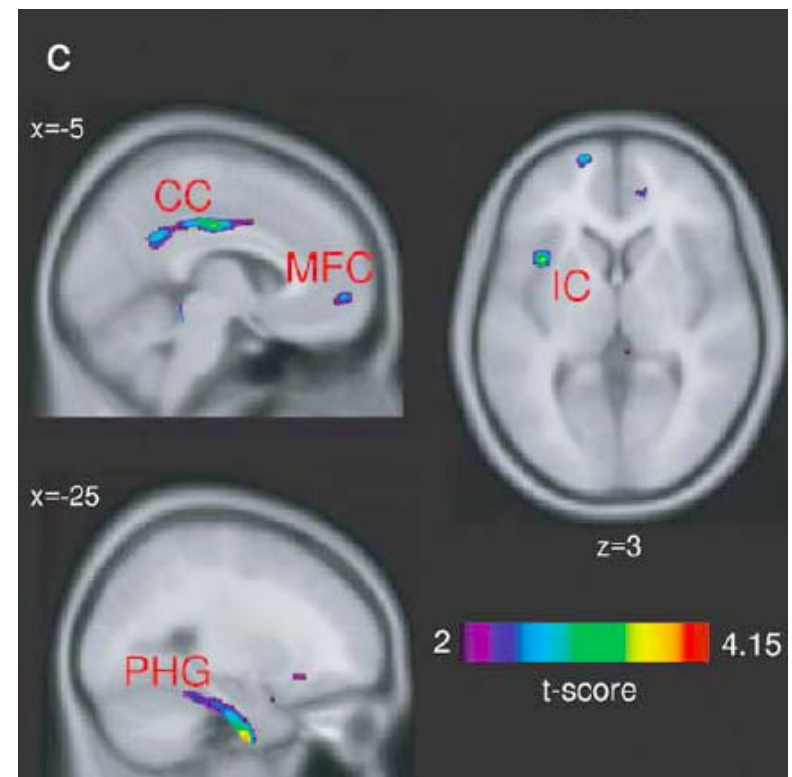


## *Demonstration of a neurological lesion?*

*Structural changes in low-back pain and fibromyalgia*



*(Apkarian et al., J. Neurosci, 2004)*



*(Kuchinad et al., J. Neurosci, 2007)*

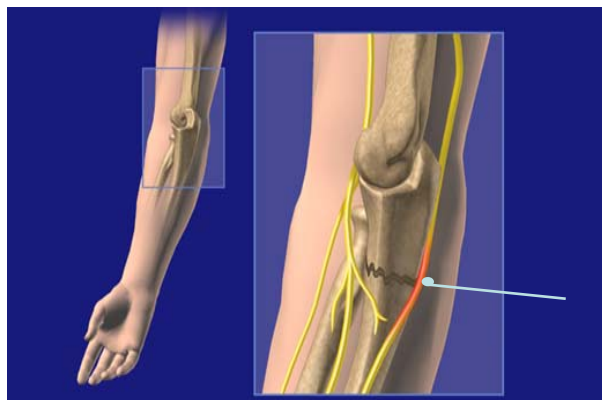
*The majority are « probable Nep*



**Shingles**



**Syringomyelia**



**Trauma**



**Surgery**

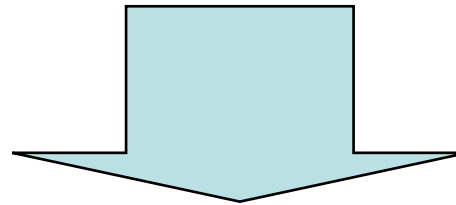


**Radiculopathy**

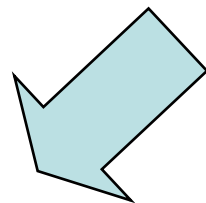
## *What is a "probable" NeP?*

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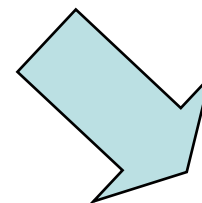
*Results of a recent large survey in > 80  
French pain centers (1400 consecutive pts)  
(Bruxelle and Bouhassira, 2008)*



*35% NeP (current definition)*



*40%  
Definite NeP*



*60%  
Probable or  
Possible NeP*

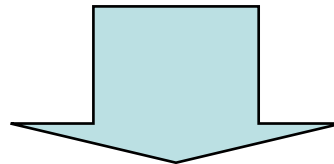
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## Clinical relevance of the Grading diagnostic system?

*Definite NeP*

*Probable NeP*

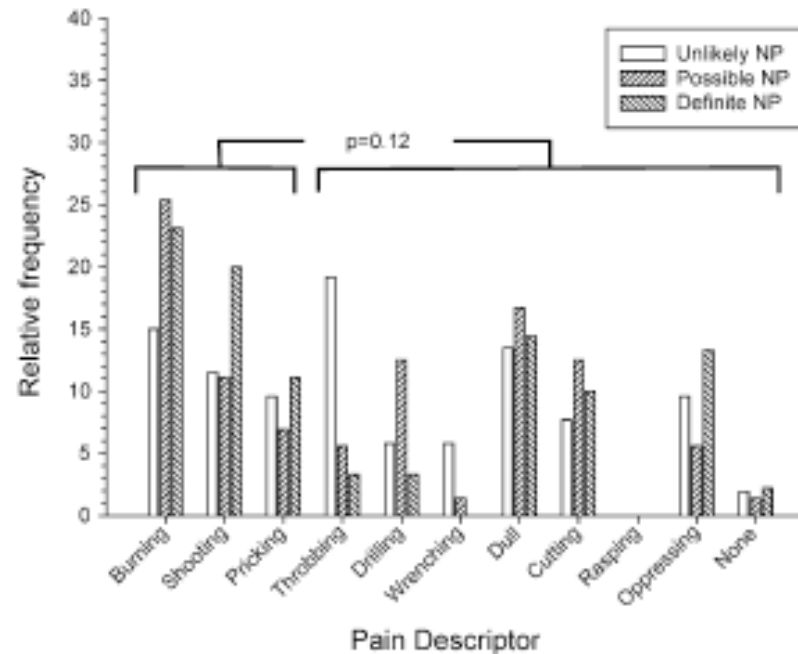
*Possible NeP*



*According to the 2 studies of Rasmussen et al., there is no difference regarding the clinical presentation or therapeutical outcome.*

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***1) Clinical examination (except brush allodynia) was similar in the 3 groups (Rasmussen Pain, 2004)***

***2) Therapeutic outcome was similar in the 3 groups (Rasmussen Eur J Pain, 2004)***

*Diagnostic Strategies for NeP*



Diagnosis based on  
Symptoms  
(pain descriptors)



Diagnosis based on  
Signs  
(lesion/topography)

## Diagnosis/ Discrimination

LANSS Pain Scale  
Bennett, Pain, 2001

Neuropathic Pain  
Questionnaire (NPQ)  
Krause & Backonja, CJ Pain, 2003

DN4  
Bouhassira et al., Pain 2005

*ID Pain*  
(Portenoy, 2006)

*Pain detect*  
(Freyenhagen et al., 2006)

## Assessment/Evaluation

Neuropathic Pain Scale  
(NPS)  
Galer & Jensen, Neurology, 1997

Neuropathic Pain  
Symptom Inventory  
(NPSI)  
Bouhassira et al., Pain 2004

# *The language of neuropathic pain*

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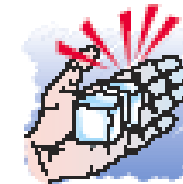
Décharges électriques  
Electric shocks



Fourmillements  
tingling



Brûlure  
burning



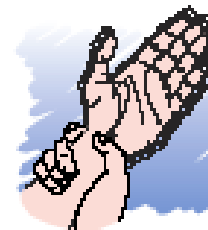
Sensation de froid  
douleur  
cold



Picolements  
Pins and needles



Démangeaisons  
Itching



Engourdissement  
numbness



**Score = 4/10**

**Specificity: 90%**

**Sensitivity: 83%**

**Bouhassira et al. Pain (2005)**

**Question 1: Does the pain has one or more of the following characteristics**

	YES	NO
Burning		
Painful Cold		
Electric shoks		

**Question 2: Is the pain associated with one or more of the following characteristics in the same area**

	YES	NO
Tingling		
Pins and Needles		
Numbness		
Itching		

**Question 3: Is the pain located in an area where the examination reveals of the following characteristics:**

	YES	NO
Touch hypoesthesia		
Pincking hypoesthesia		

**Question 4: In the painful area, can the pain be caused or increased by:**

	YES	NO
Brushing		



*Score = 3/7*

*Specificity: 81%*  
*Sensitivity: 78%*

*Bouhassira et al. Pain (2005)*

***Question 1: Does your pain has one or more of the following characteristics***

	YES	NO
Burning		
Painful Cold		
Electric shoks		

***Question 2: Is the pain associated with one or more of the following symptoms in the same area***

	YES	NO
Tingling		
Pins and Needles		
Numbness		
Itching		

- *The new definition is complicated and applicable only to neurologists.*
  - *The new definition does not refer to the symptoms, while 5 recent studies showed that the combination of a small number of pain descriptors have a high discriminant value*
  - *What is the clinical significance of the new definition in terms of treatment?*
  - *How to manage "probable neuropathic pain", which represents the vast majority of NeP patients?*
  - *New definition and/or criteria of NeP should be validated in the clinical setting.*
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