

Update On Neuropathic Pain Management

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Curriculum Vitae

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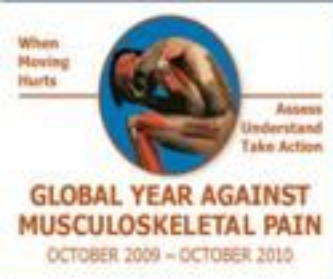
**When
Moving
Hurts**



**Assess
Understand
Take Action**

GLOBAL YEAR AGAINST MUSCULOCELETAL PAIN

OCTOBER 2009 – OCTOBER 2010



INDONESIAN PAIN SOCIETY (IPS)



Year : “Global Year Against Musculoskeletal Pain”

Theme :

“When Moving Hurts...Assess, Understand, Take Action”

Will Focus Attention On The Problem Of Musculoskeletal Pain

And Its Significant Impact On Patients Around The World.



KOMPETENSI NYERI NOSISEPTIF DAN NEUROPATIK (Cont)

Materi pokok

Nyeri nosiseptif dan nyeri neuropatik

Kompetensi dasar

Mempunyai kompetensi menyeluruh tentang nyeri meliputi mekanisme dasar, penilaian, pengukuran, terapi, dan manajemennya termasuk rehabilitasi

Indikator hasil pembelajaran

- **Identifikasi nyeri nosiseptif, neuropatik dan psikogenik**
- Membedakan ketiga bentuk nyeri berdasarkan gambaran nyeri dan penyebabnya
- Menganjurkan pemeriksaan spesifik untuk diagnosis (penilaian dan pengukuran nyeri)



KOMPETENSI NYERI NOSISEPTIF DAN NEUROPATIK (Cont)

Materi pokok

Nyeri nosiseptif dan nyeri neuropatik

Kompetensi dasar

Mempunyai kompetensi menyeluruh tentang nyeri meliputi mekanisme dasar, penilaian, pengukuran, terapi, dan manajemennya termasuk rehabilitasi

Indikator hasil pembelajaran

- Mengetahui penyebab dan mengevaluasinya
- **Mengobati keluhan secara farmakologik dan non farmakologik, serta mengevaluasi hasilnya**
- Melakukan rujukan kepada sejawat dari bagian lain yang terkait dengan persoalan nyeri termasuk rehabilitasinya



NYERI DIRASAKAN

Bila ada informasi yang masuk ke otak yang berasal dari :

1. Adanya rangsangan yang tidak merusak jaringan. misalnya : pukulan ringan
2. Adanya kerusakan jaringan. misalnya : rematik , luka jaringan karena trauma seperti tertusuk jarum, tersayat pisau, dll
3. Adanya kerusakan jaringan saraf. misalnya : pada penderita dompo (herpes zoster), diabetes melitus (kencing manis), stroke
4. Adanya gangguan fungsi sistem saraf dimana dalam pemeriksaan medik yang lengkap tidak ditemukan adanya sumber penyakit



Beberapa rasa sakit , sakit hati (luka hati)
maupun trauma emosional tidak
memerlukan stimulus secara fisik.



PRESENTATION ACROSS PAIN STATES VARIES

Neuropathic Pain

Pain initiated or caused by a primary lesion or dysfunction in the nervous system (either peripheral or central nervous system)¹

Examples

Peripheral

- Postherpetic neuralgia
- Trigeminal neuralgia
- Diabetic peripheral neuropathy
- Postsurgical neuropathy
- Posttraumatic neuropathy

Central

- Poststroke pain

Common descriptors²

- Burning
- Tingling
- Hypersensitivity to touch or cold

Mixed Pain

Pain with neuropathic and nociceptive components

Examples

- Low back pain with radiculopathy
- Cervical radiculopathy
- Cancer pain
- Carpal tunnel syndrome

Nociceptive Pain

Pain caused by injury to body tissues (musculoskeletal, cutaneous or visceral)²

Examples

- Pain due to inflammation
- Limb pain after a fracture
- Joint pain in osteoarthritis
- Postoperative visceral pain

Common descriptors²

- Aching
- Sharp
- Throbbing

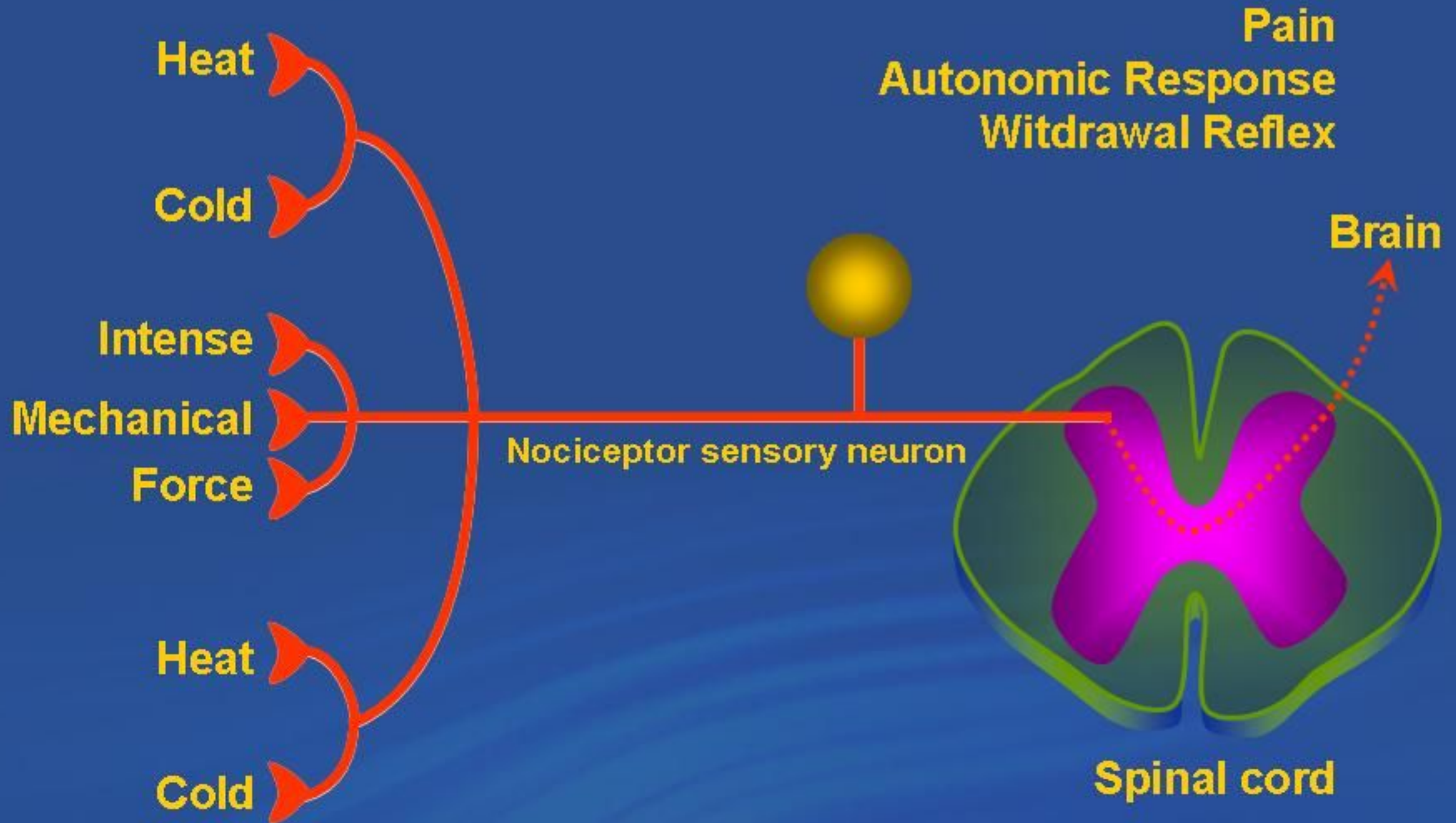
1. International Association for the Study of Pain. IASP Pain Terminology.

2. Raja et al. in Wall PD, Melzack R (Eds). Textbook of pain. 4th Ed. 1999.;11-57



NOCICEPTIVE PAIN

Noxious Peripheral Stimuli



INFLAMMATORY PAIN

Spontaneous Pain
Pain Hypersensitivity

Reduced Threshold : Allodynia
Increased Response : Hyperalgesia

Inflammation

Macrophage



Mast Cell



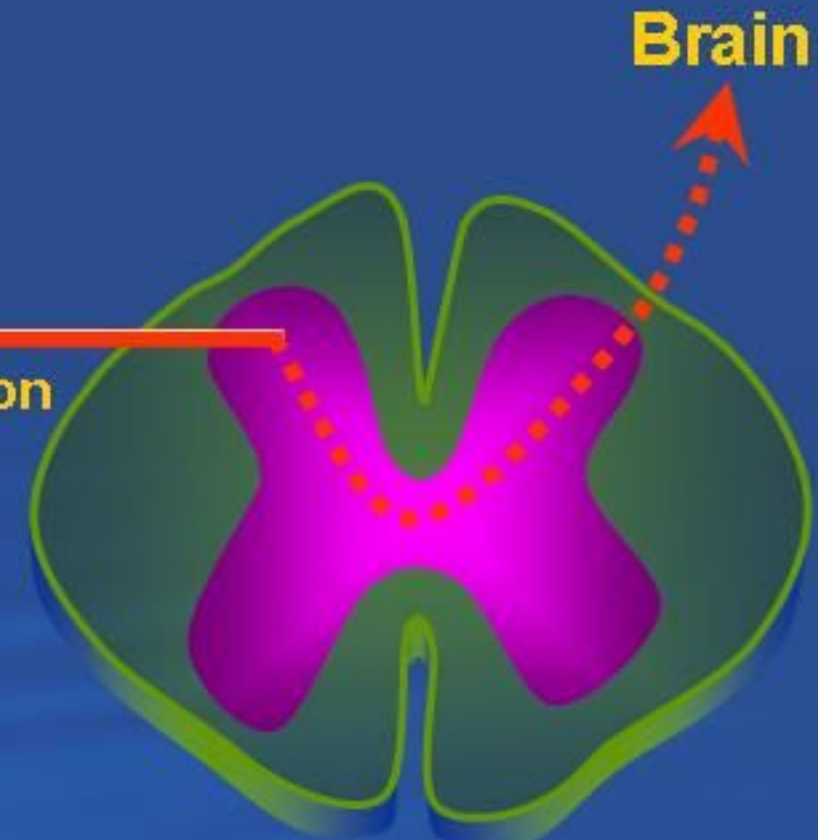
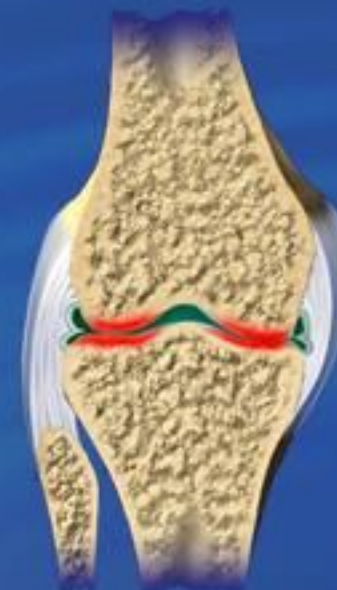
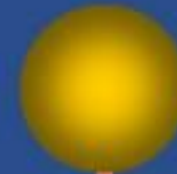
Neutrophil
Granulocyte



Tissue Damage



Nociceptor sensory neuron

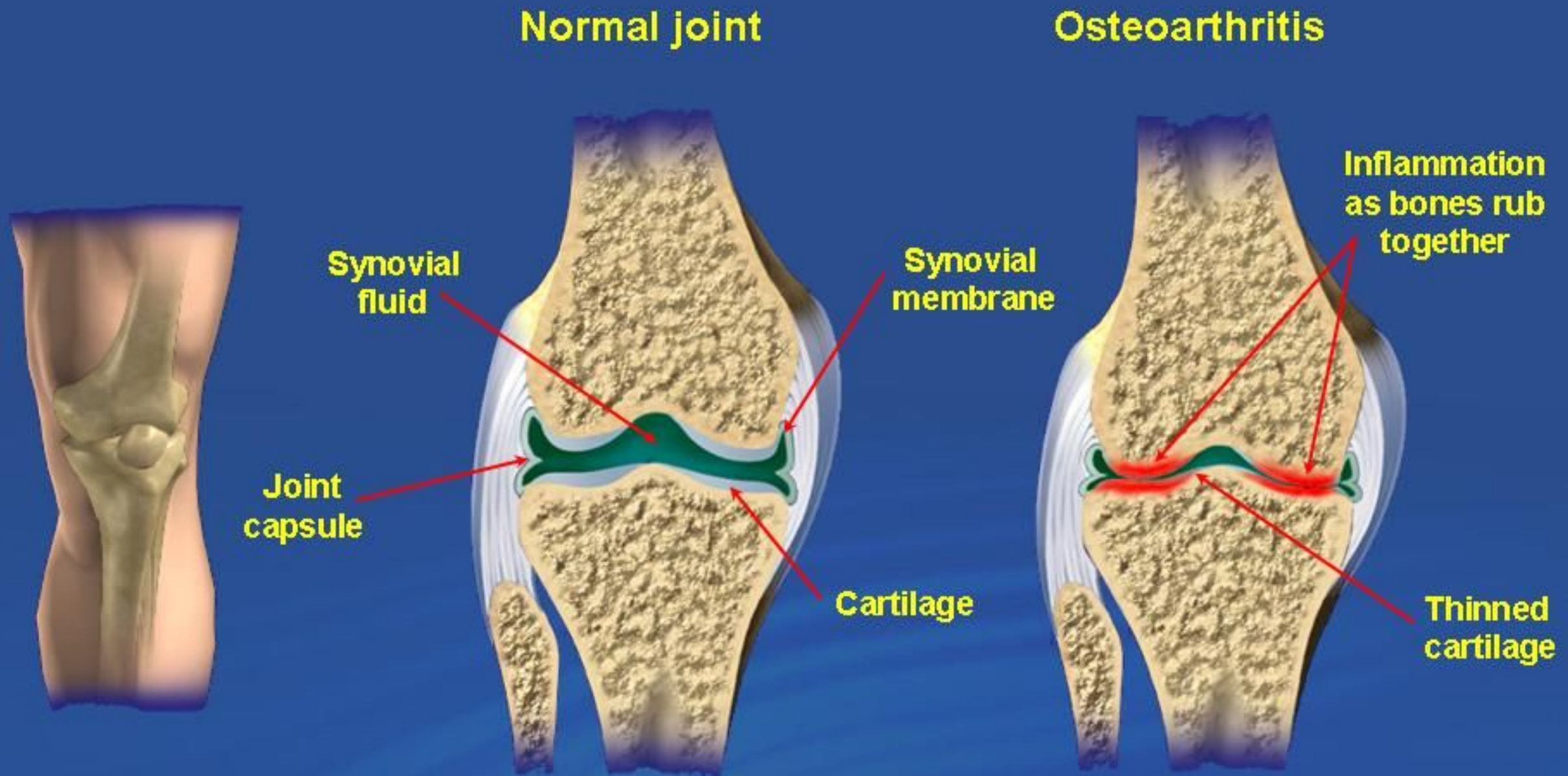


Brain

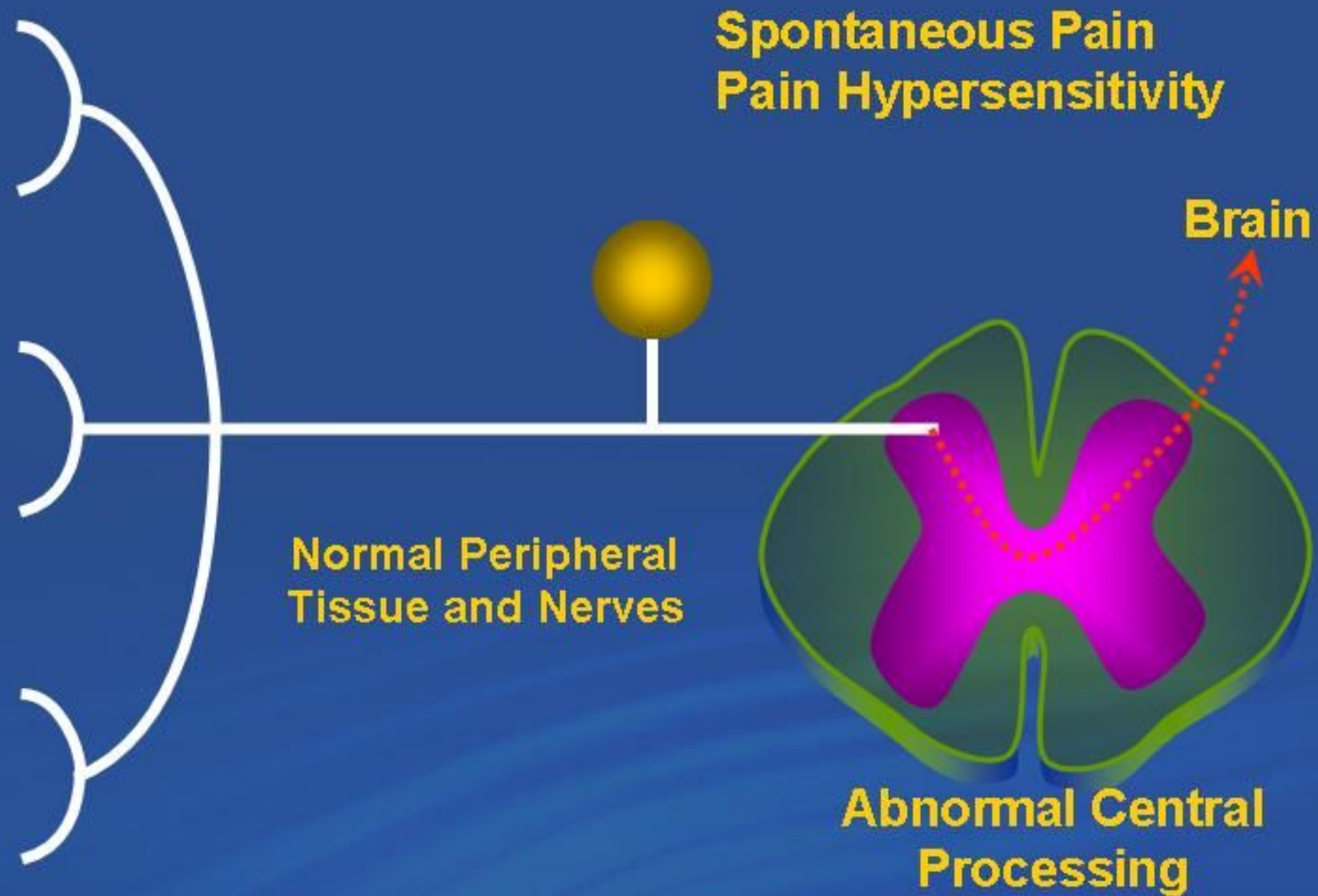
Spinal cord



EXAMPLE OF CHRONIC NOCICEPTIVE PAIN: OSTEOARTHRITIS OF THE KNEE



FUNCTIONAL PAIN



PENYAKIT, KESAKITAN, ATAU KEDUANYA

BERU



Penyakit
tanpa
kesakitan

Ulkus (luka)



Penyakit dan
kesakitan



SAKIT

Tanpa Ulkus
(tidak luka)



Nyeri perut
fungsional
yang kronik

Kesakitan
tanpa
penyakit

A M E



SAKIT

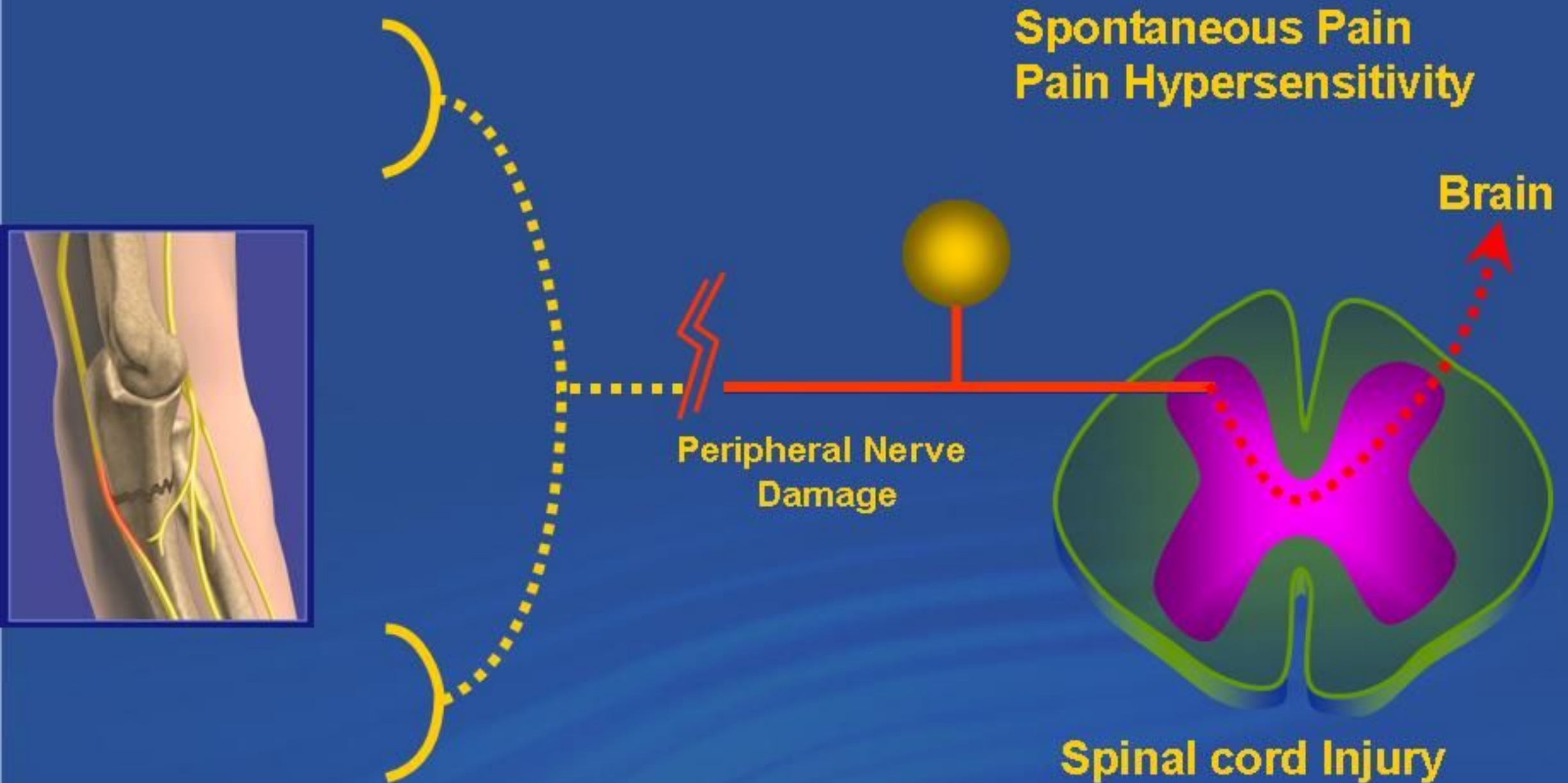


What is neuropathic pain?

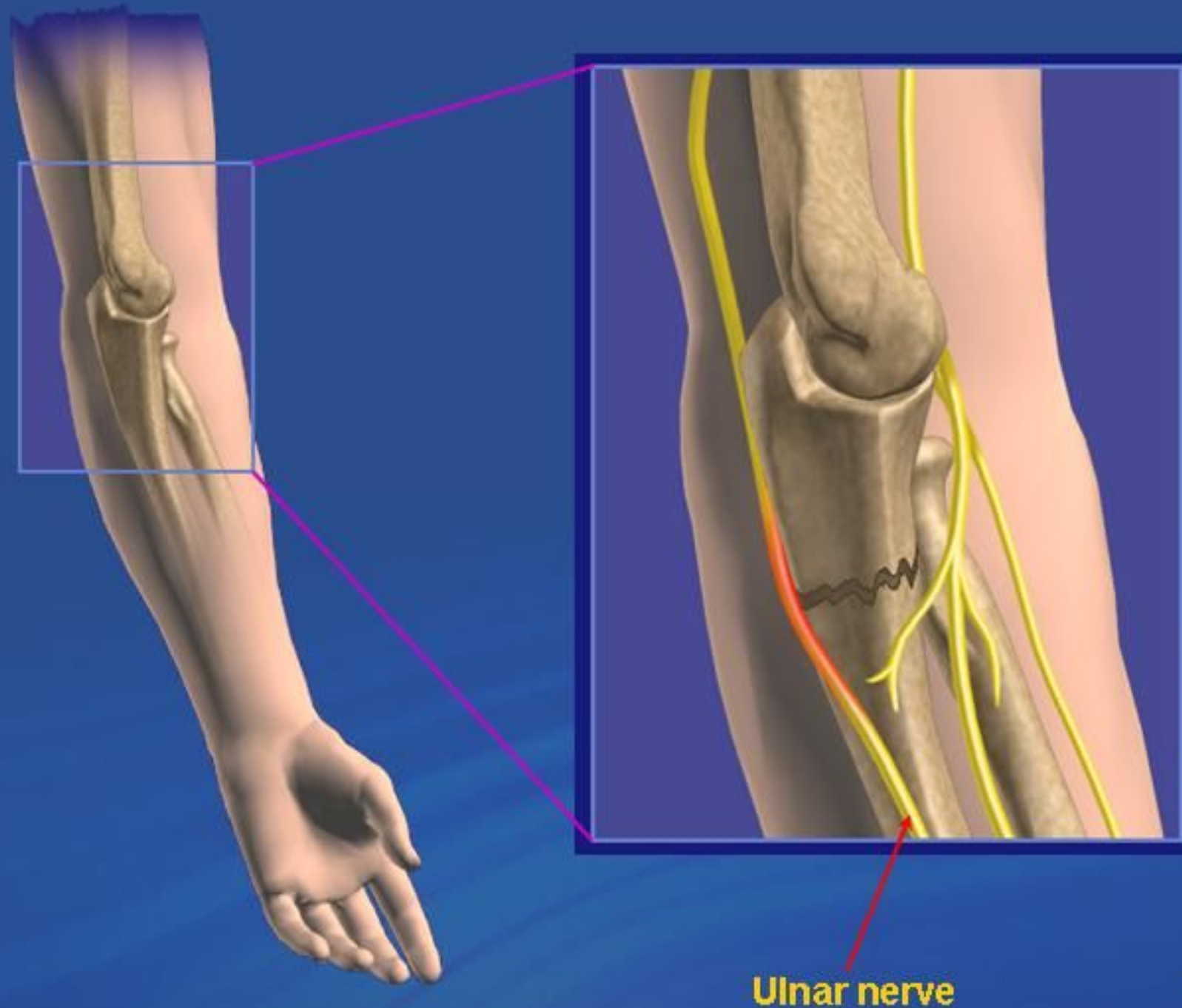
- Pain initiated or caused by a primary lesion or dysfunction in the peripheral or central nervous system
- Pain often described as shooting, electric shock-like, burning – commonly associated with tingling or numbness
- The painful region may not necessarily be the same as the site of injury. Pain occurs in the neurological territory of the affected structure (nerve, root, spinal cord, brain)
- Almost always a chronic condition (e.g. postherpetic neuralgia, poststroke pain)
- Responds poorly to conventional analgesics



NEUROPATHIC PAIN



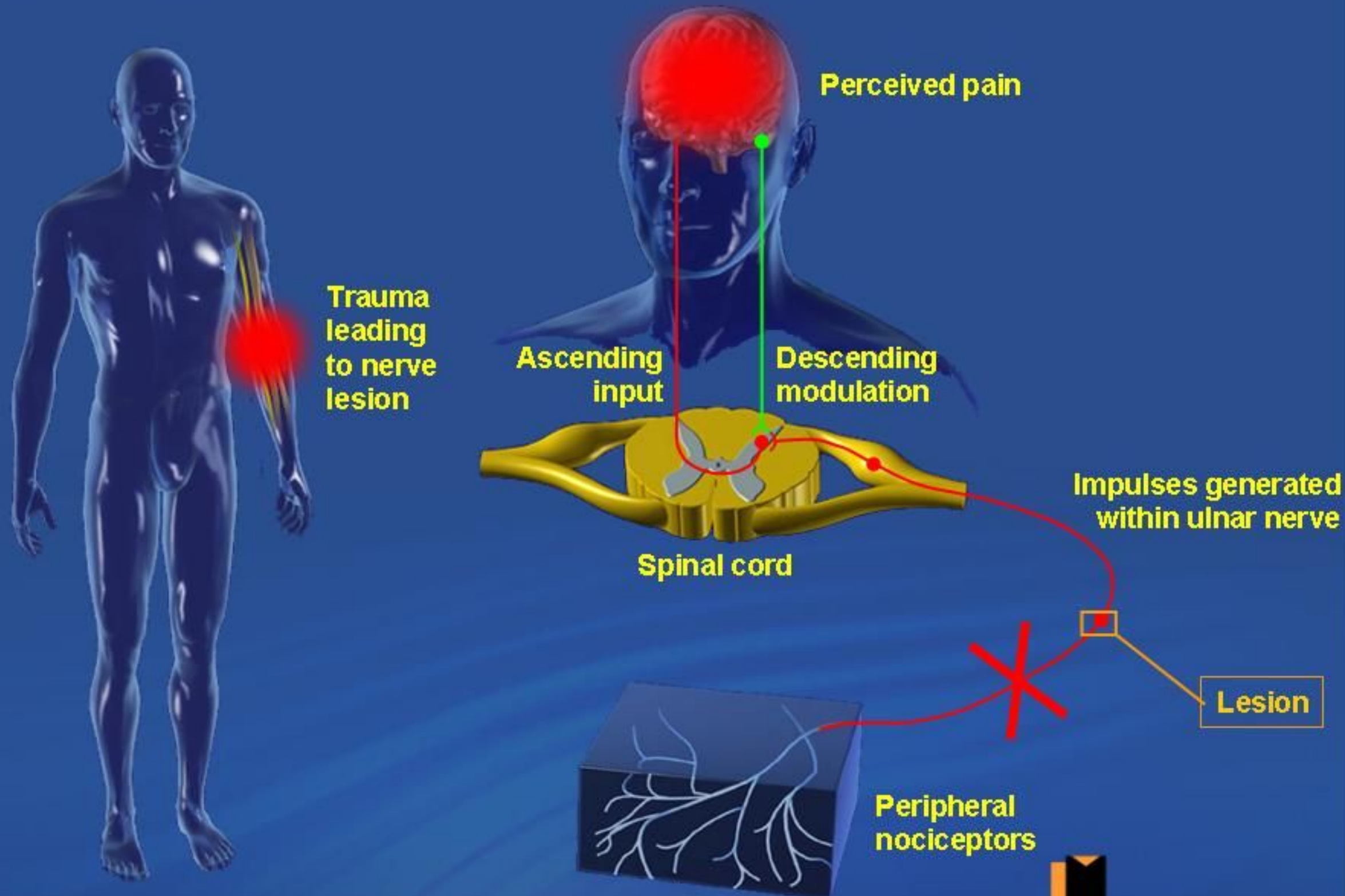
EXAMPLE OF NEUROPATHIC PAIN: ULNAR NERVE LESION FOLLOWING BONE FRACTURE



Ulnar nerve



EXAMPLE OF NEUROPATHIC PAIN: ULNAR NERVE LESION FOLLOWING BONE FRACTURE

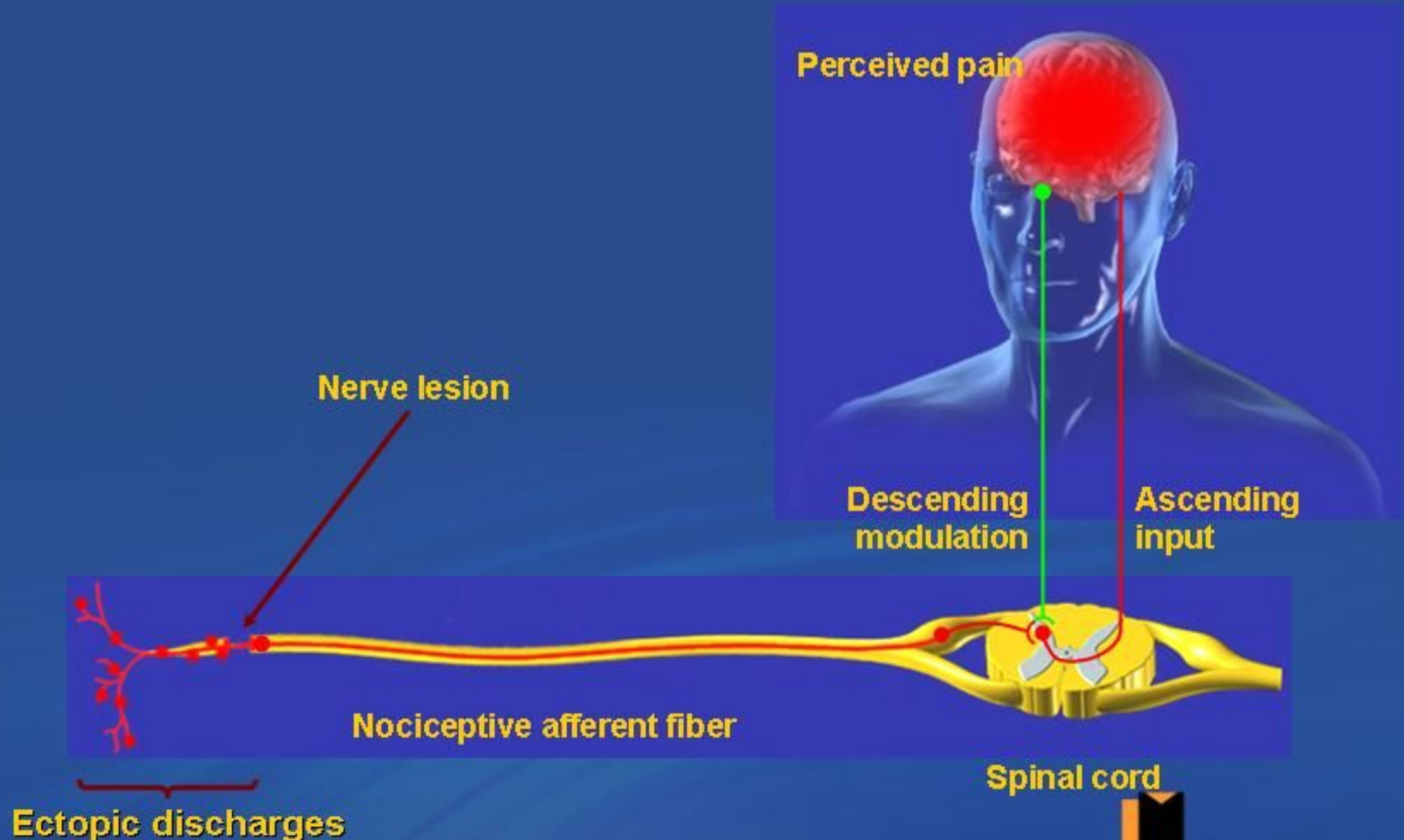


“Gedung-gedung makin tinggi namun sumbu amarah kita makin pendek”



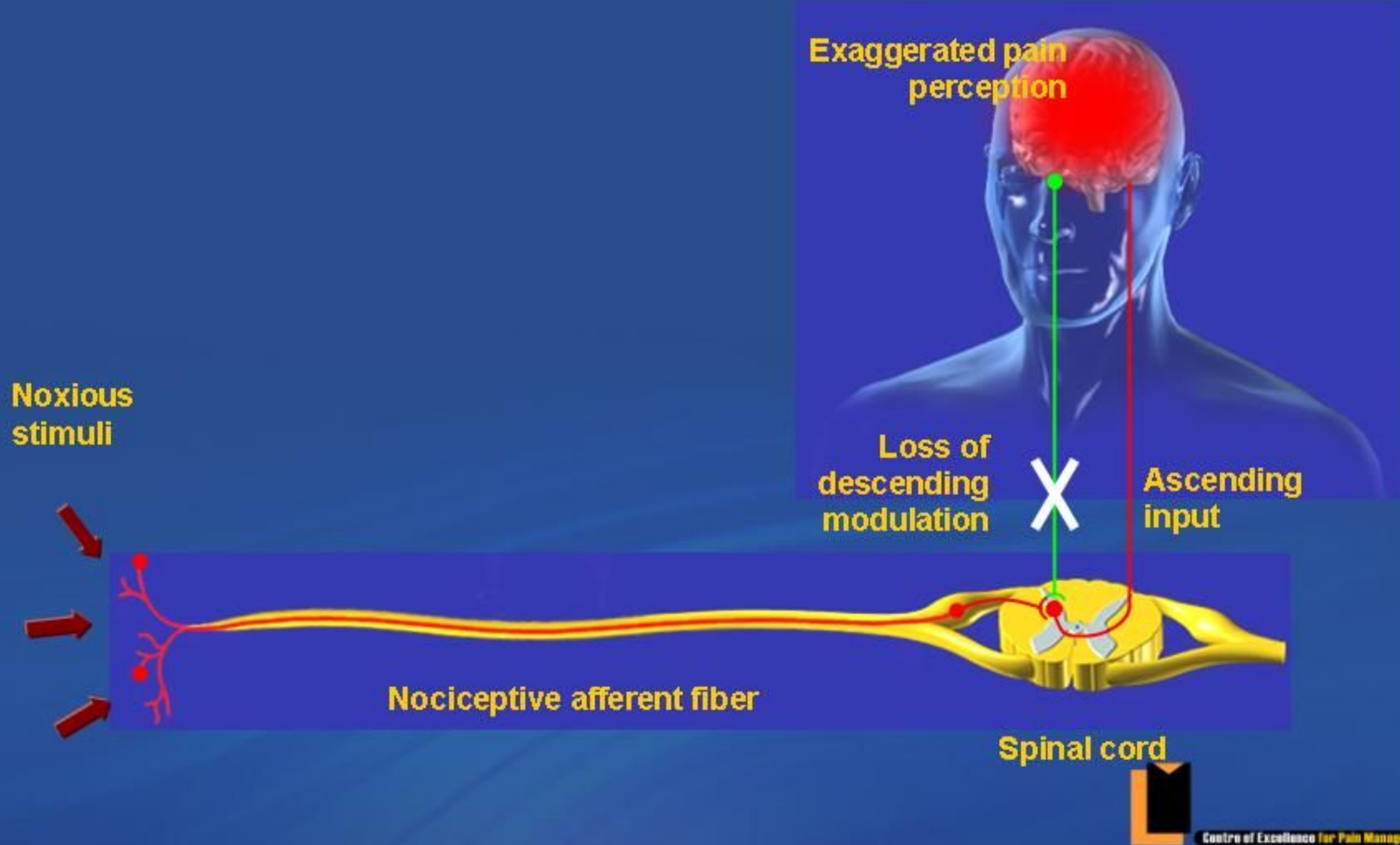
Ectopic Discharges

Nerve lesion induces hyperactivity due to changes in ion channel function



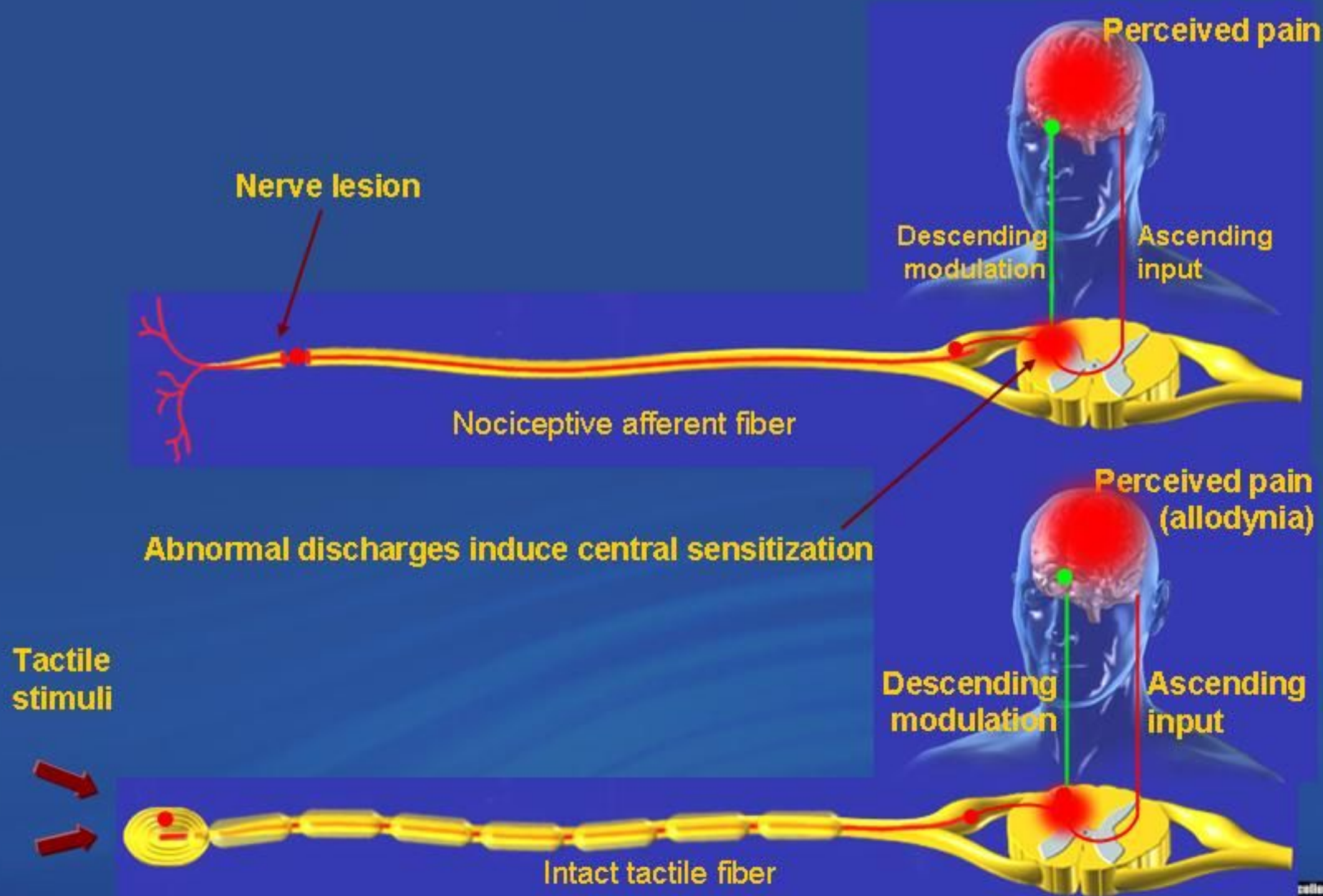
Loss of inhibitory controls

Loss of descending modulation causes exaggerated pain due to an imbalance between ascending and descending signals



Central sensitization

After nerve injury, increased input to the dorsal horn can induce central sensitization





Burning, feeling like the feet are on fire



Freezing, like the feet are on ice, although they feel warm to touch



Stabbing, like sharp knives



Lancinating, like electric shocks

Modified by Meliala 2006

ID Pain Questionnaire

1. Did the pain feel like pins and needles ?

Yes (-1 point) No (0 points)

2. Did the pain feel hot/burning ?

Yes (-1 point) No (0 points)

3. Did the pain feel numb ?

Yes (-1 point) No (0 points)

4. Did the pain feel like electrical shocks ?

Yes (-1 point) No (0 points)

5. Is the pain made worse with the touch of clothing or bedsheets ?

Yes (-1 point) No (0 points)

6. Is the pain limited to your joints ?

Yes (-1 point) No (0 points)



BARRIERS TO PAIN MANAGEMENT

	US	Int'l
Inadequate pain assessment	76%	n/a
Patient reluctance to report pain	62%	n/a
Patient reluctance to take opioids	62%	n/a
Physician reluctance to prescribe opioids	61%	n/a
<u>INADEQUATE STAFF KNOWLEDGE ABOUT PAIN MANAGEMENT</u>	52%	n/a
Nursing staff reluctance to give opioids	38%	n/a
Excessive state regulation of analgesics	18%	n/a
Lack of psychological support services	11%	n/a
Lack of equipment	6%	n/a
Lack of access to wide range of analgesics	3%	n/a

PERSEPSI NYERI

Sangat dipengaruhi :

1. Faktor psikologis : arti dari nyeri, perhatian, status emosional, dll
2. Faktor somatik : berat ringannya kerusakan jaringan



PERSEPSI NYERI

75% Psychologic
25 % Somatic

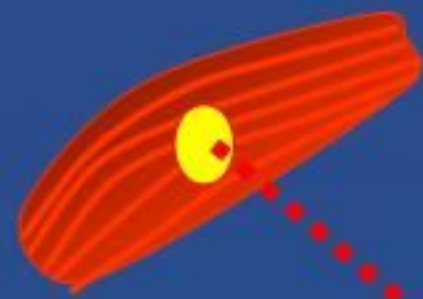
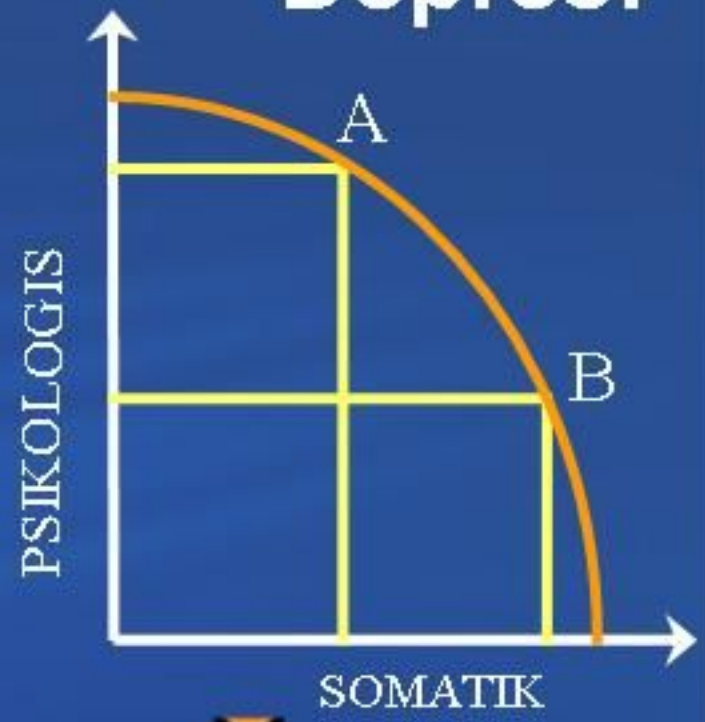
Marah

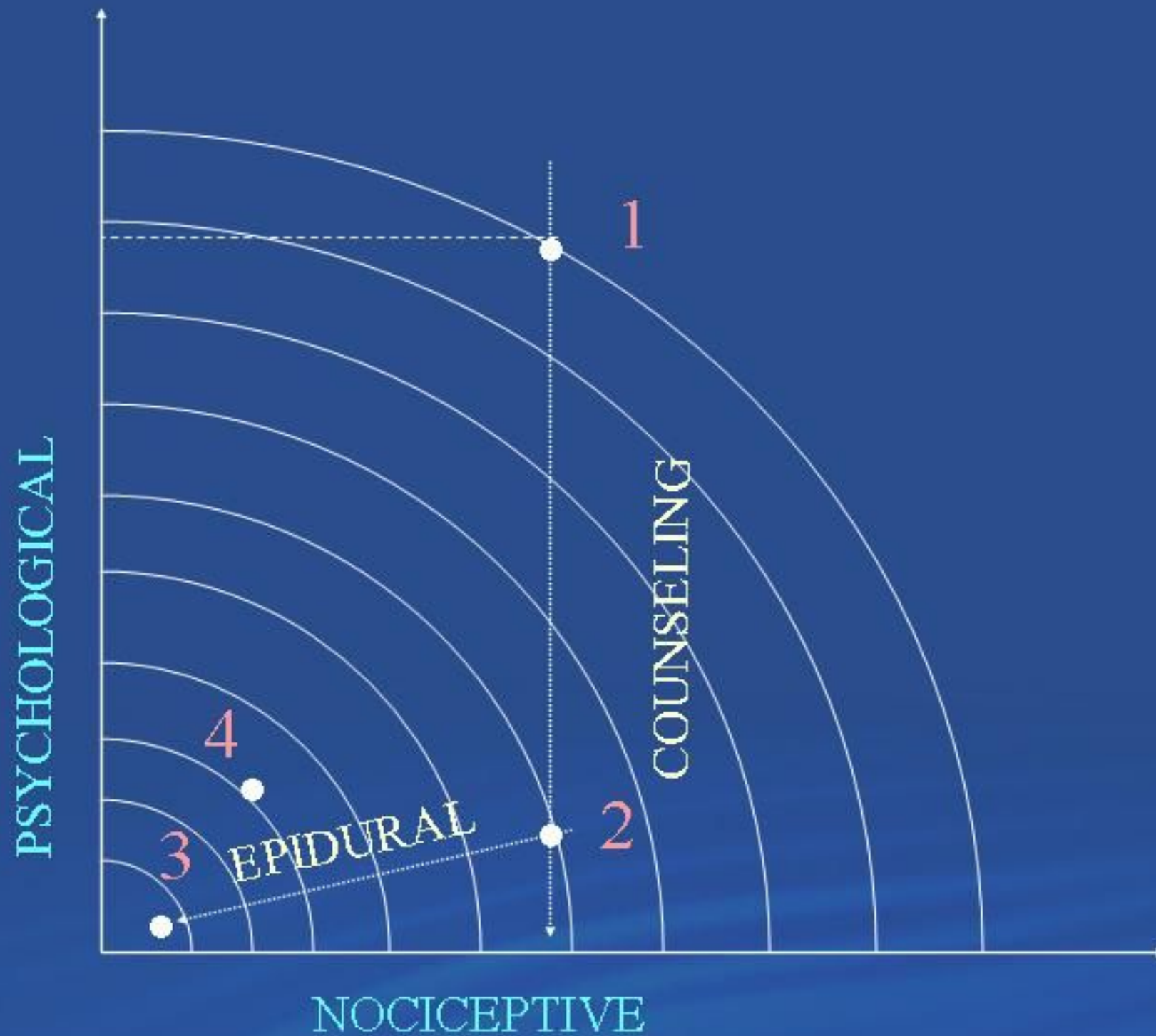
Cemas

Takut

Depresi

Stimuli Noxious

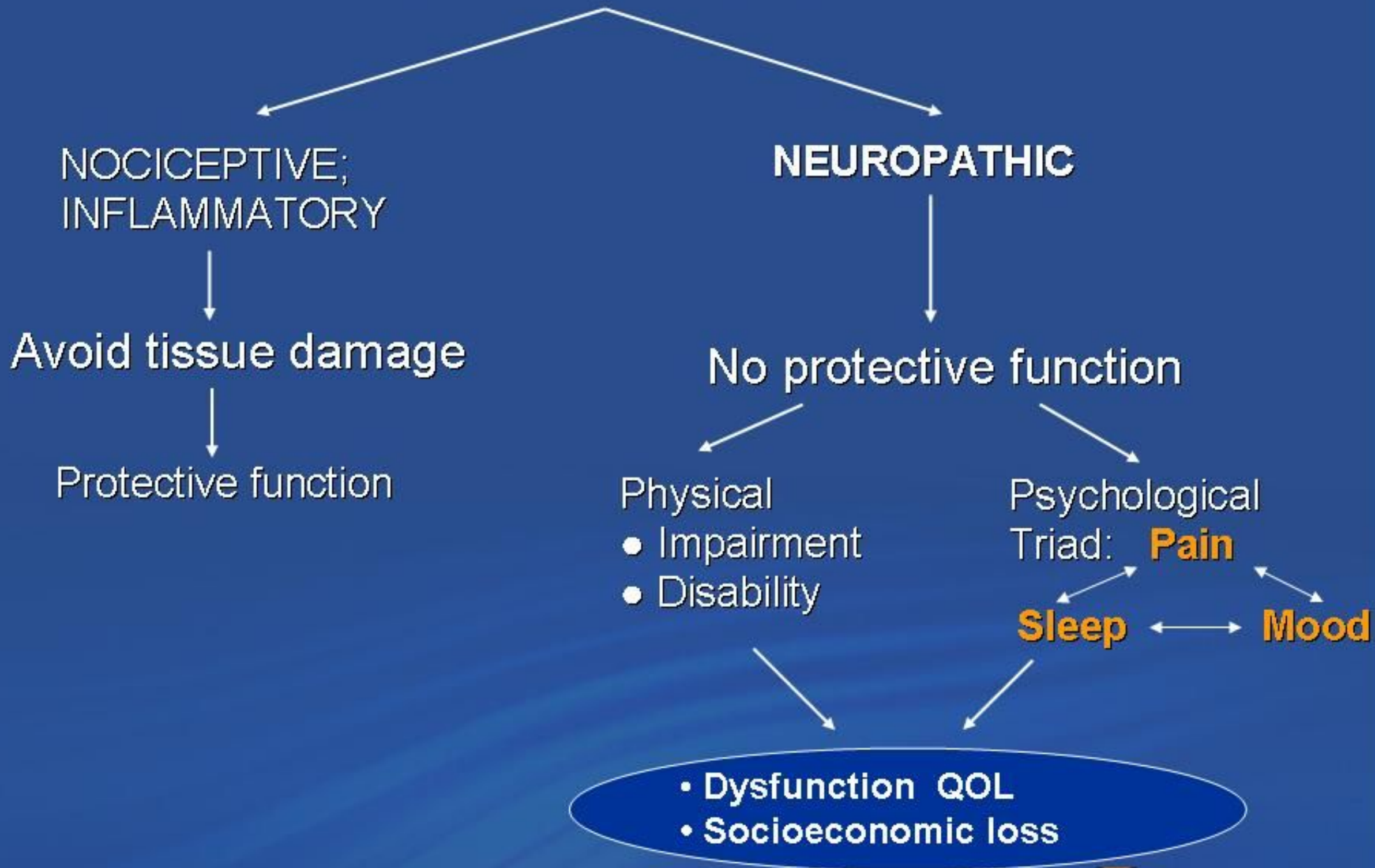




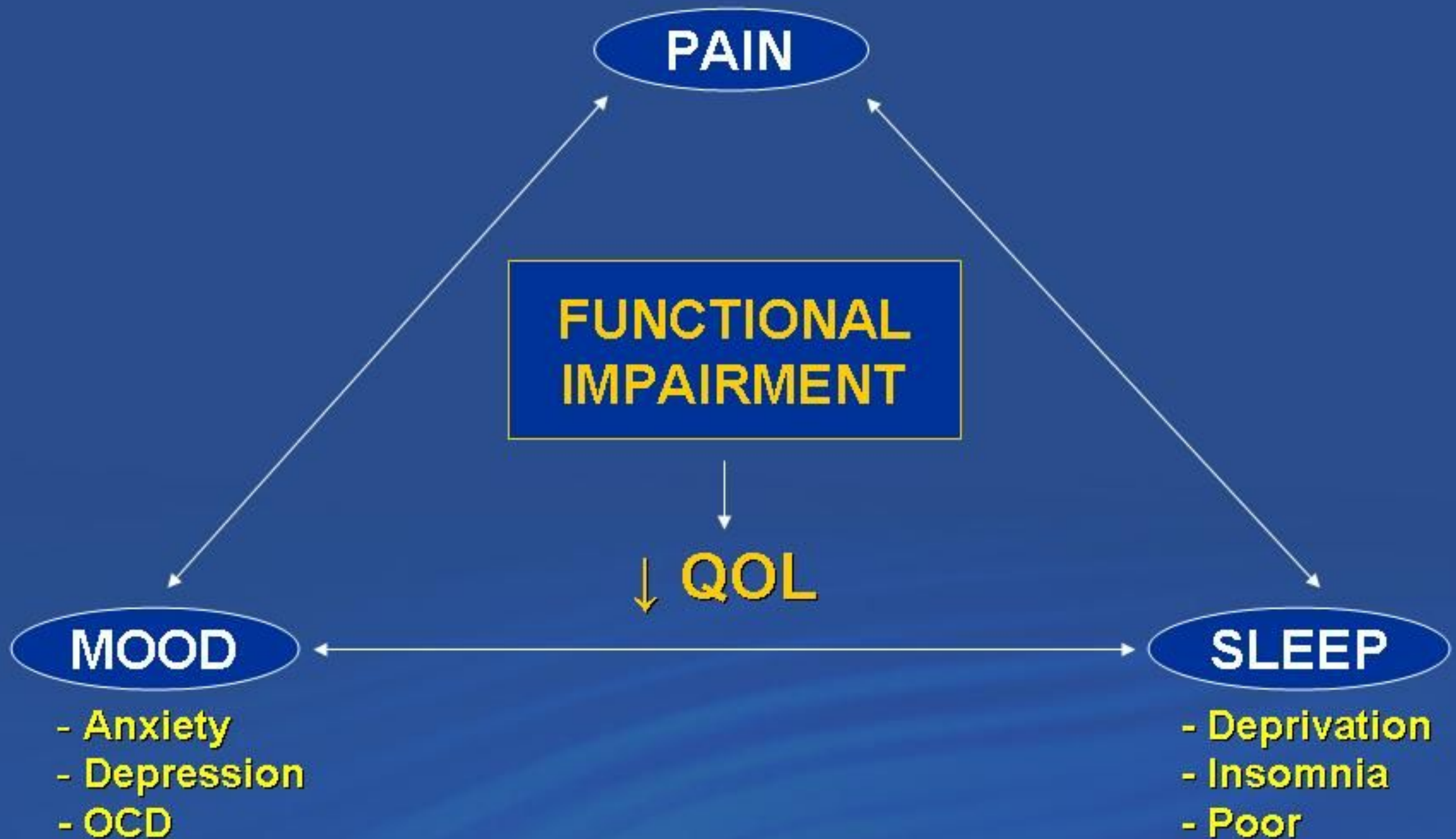
Haddock, 1990; Jacobson & Mariano, 2001



IMPACT OF PAIN



PSYCHOLOGICAL NEUROPATHIC PAIN TRIAD



The task of a doctor:

- TO CURE IS SOMETIMES
- TO TREAT IS OFTEN
- TO COMFORT IS ALWAYS

A. Pare (1598)



Treatment Update of Neuropathic Pain

Traditional

New paradigm

Biomedical model

Biopsychosocial model

- Treating pain

- Treating pain
- Treating sleep interference
- Treating mood disorder



New Paradigm in Neuropathic Pain Management

- *Whole-patient management approach*
- *through a Biopsychosocial model*
- *by Multidisciplinary team approach*

Therapy: Pharmacologic + Non-pharmacologic

Goal :

- *Alleviate pain*
- *Treat comorbid conditions (sleep, mood)*
- *Improve function*

**BETTER
QUALITY
OF LIFE**



Pengobatan Nyeri Neuropatik Saat ini

- Ditujukan untuk mengurangi kepekaan neuron di sistema nervorum perifer dan sentral dengan memodulasi aktivitas saluran ion (GBP, PGB, CBZ)
- Meningkatkan mekanisme inhibisi endogen (TCA, Duloxetine, opioid, Tramadol) dan hasilnya belum memuaskan
- Mengapa??????

EFNS guidelines for the treatment of painful polyneuropathy

- Drugs with established efficacy include PREGABALIN, gabapentin, TCAs, SNRIs,, strong opioids and tramadol

Recommendations:

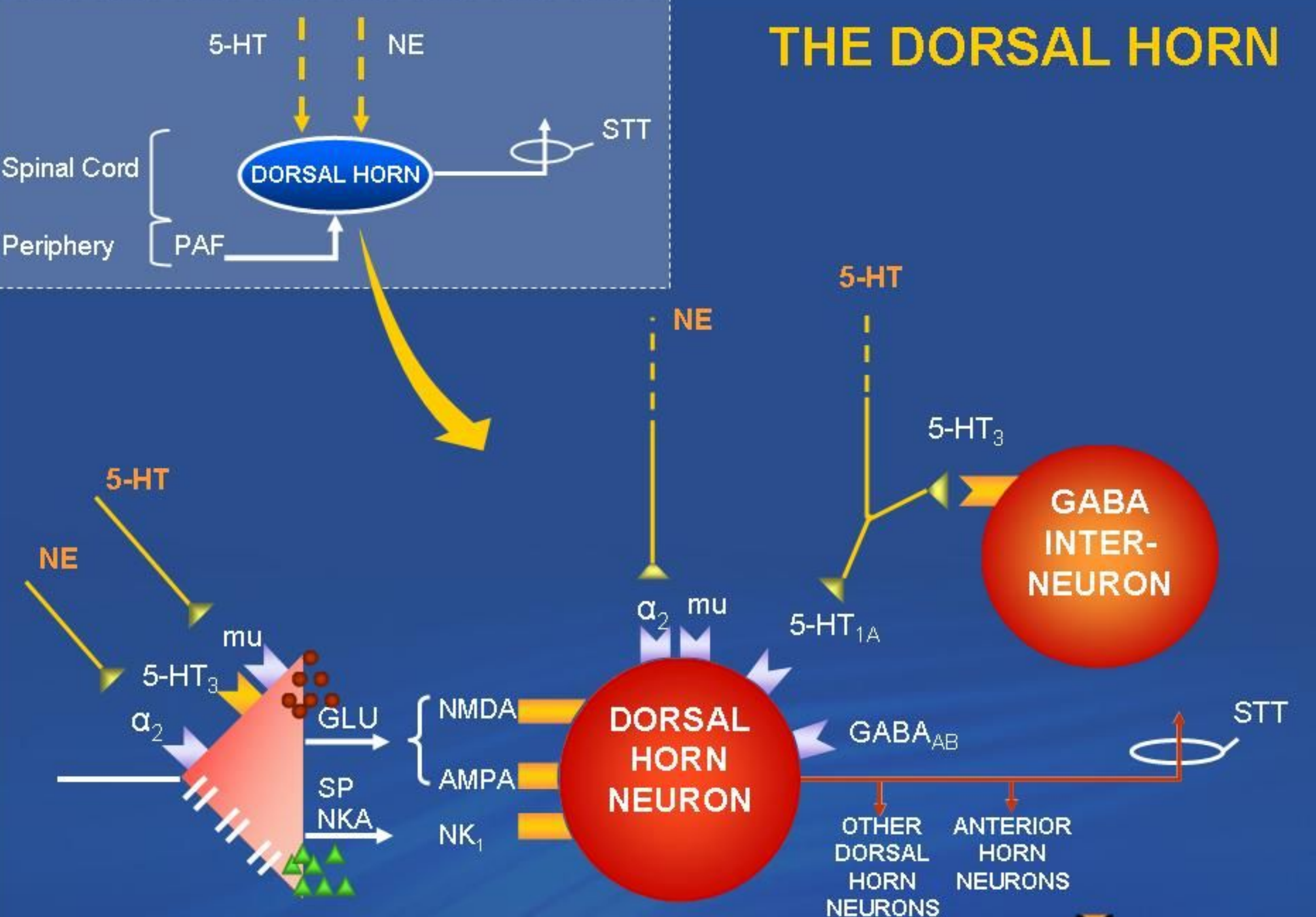
First line therapy	PREGABALIN/gabapentin or TCAs/SNRIs (evidence level A)
Second line therapy	Opioids and lamotrigine (evidence level B)
Lack of or weak efficacy	SSRIs, capsaicin, mexiletine, oxcarbazepine and topiramate (evidence level A)
Low strength evidence or safety concerns	Carbamazepine and valproate

WHAT PREGABALIN DOES...*

- *Pregabalin binds to the α_2 - δ subunit of voltage-gated calcium channels*
 - *Pregabalin reduces calcium influx at presynaptic terminals in hyperexcited neurons*
 - *Subsequent to α_2 - δ binding, pregabalin reduces release of excitatory neurotransmitters*
 - *e.g. glutamate, substance P, norepinephrine*
- ➔ ■ *Analgesic, anxiolytic, anticonvulsant activities*

*These findings are derived from work in preclinical experimental models. The clinical significance in humans is not known.

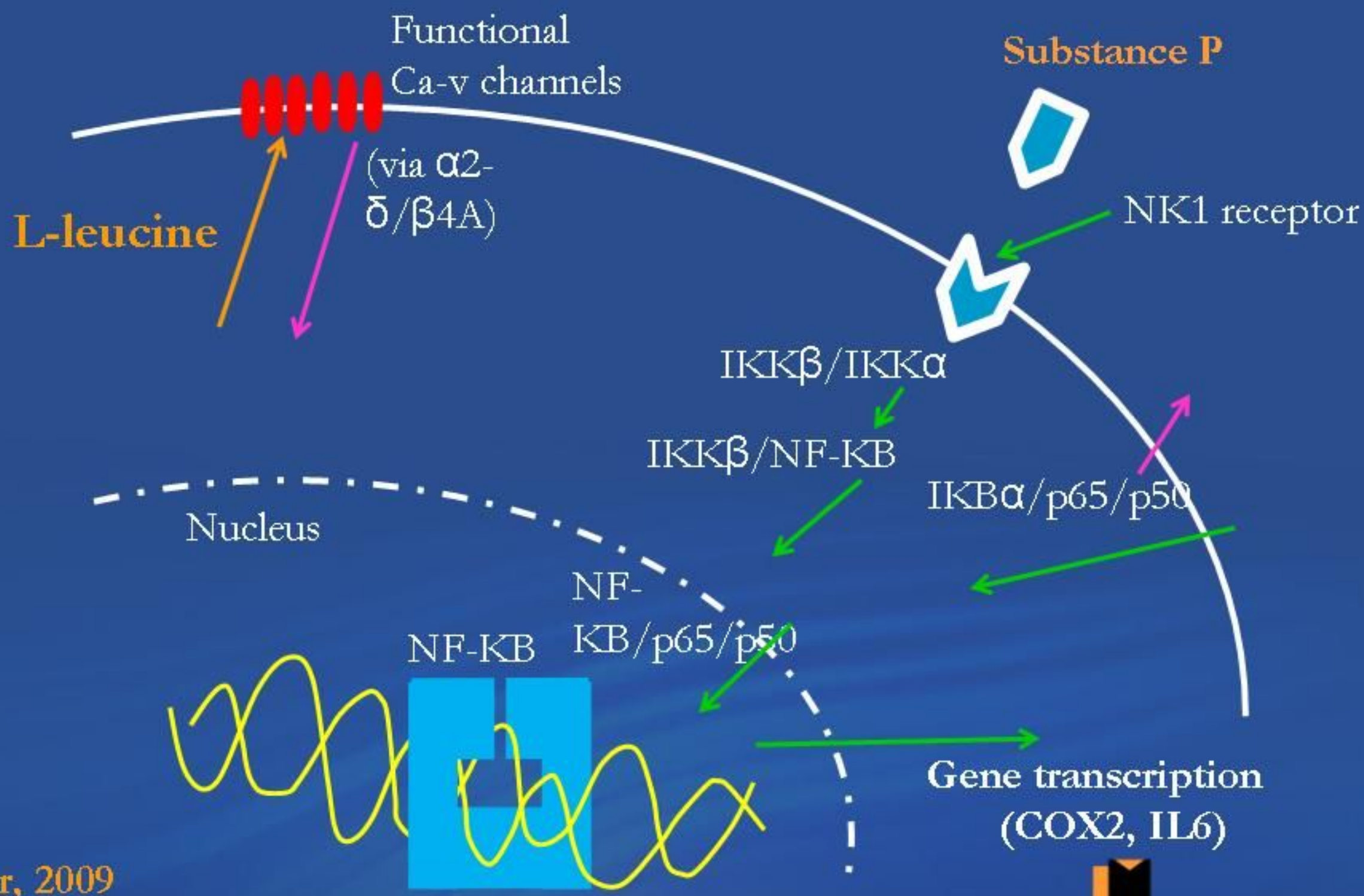
THE DORSAL HORN



Woolf & Mitchel, 2001

Modifikasi Meliala, 2003

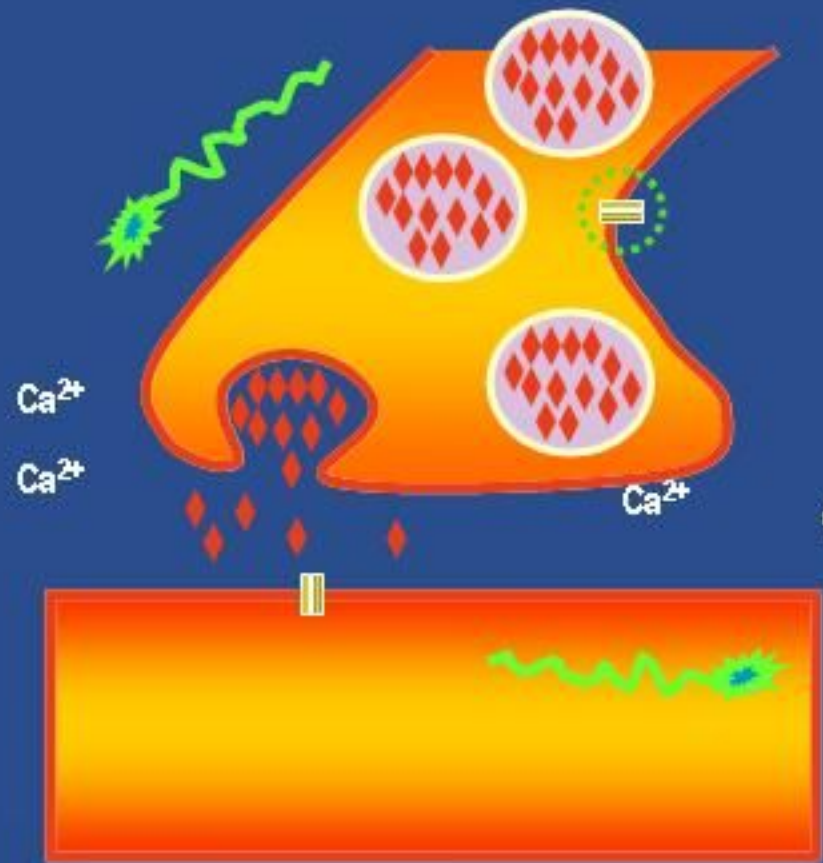
Therapeutic Actions of Ca-v $\alpha 2-\delta$ Drugs



Taylor, 2009

Modifikasi Meliala, 2009

Gabapentin and Pregabalin Binding to Voltage-Dependent Calcium Channels



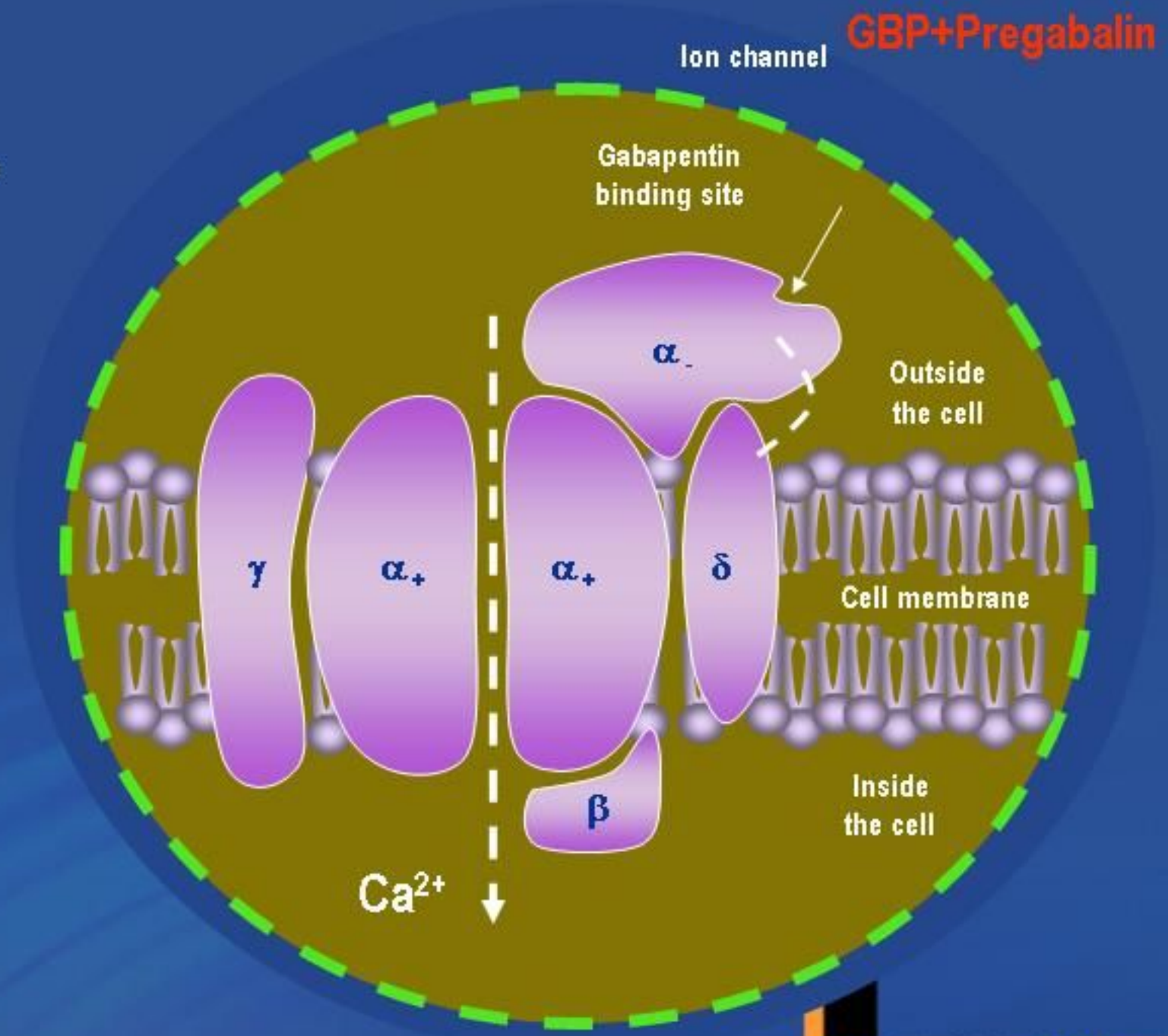
Ca^{2+}

Ca^{2+}

Ca^{2+}

Ca^{2+}

Ca^{2+}



Ion channel

GBP+Pregabalin

Gabapentin binding site

Outside the cell

Cell membrane

Inside the cell

Ca^{2+}

SUMMARY

LATIN

Lyrica is the Advanced Treatment in Ne-P

- Rapid & sustain pain relief (significant pain reduction as early as week 1 and consistent a long treatment)
- Improve sleep disturbance and anxiety (cover Triad of Pain)
- Excellent safety profile (adverse events were usually mild to moderate and dose related)
- No known pharmacokinetic drug interactions
- Easy of use (BID dosing & no need titration)



*“ Aku telah memberikan obat
yang aku kenal
terhadap penyakit
yang aku pahami,
kepada pasien
yang tidak tahu apa-apa”.*

I'm not a dangerous doctor anymore





SALAM

