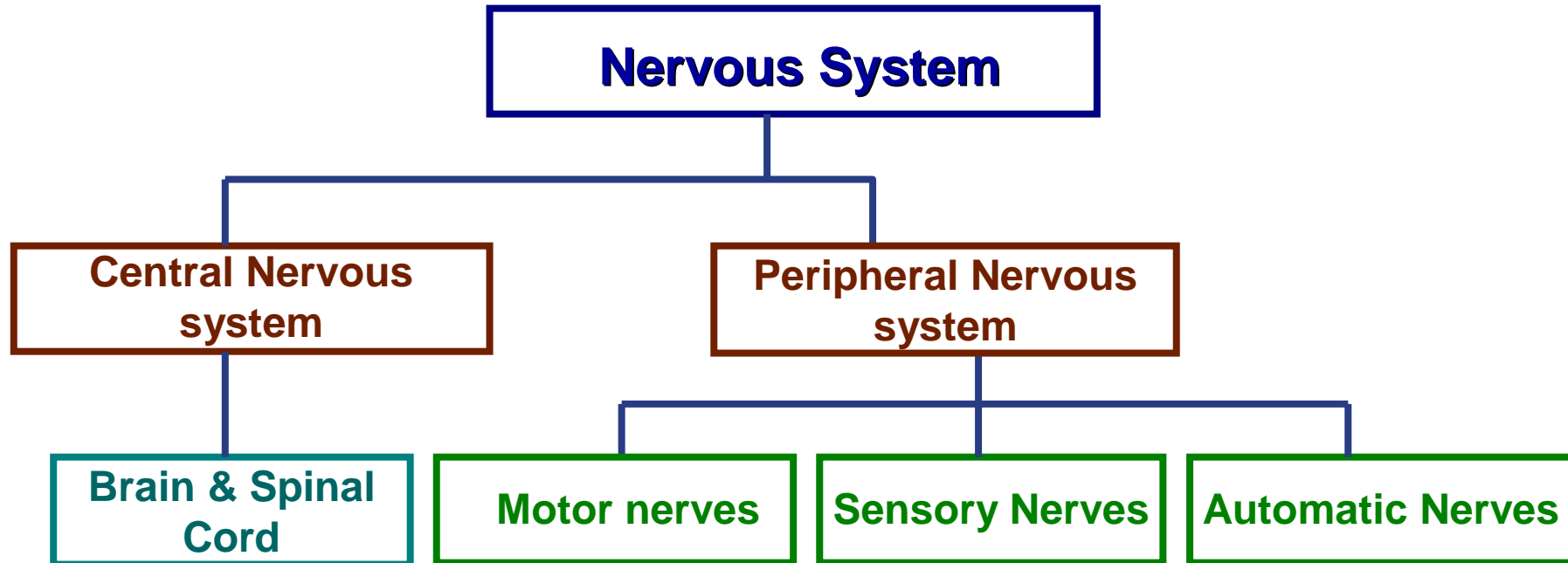


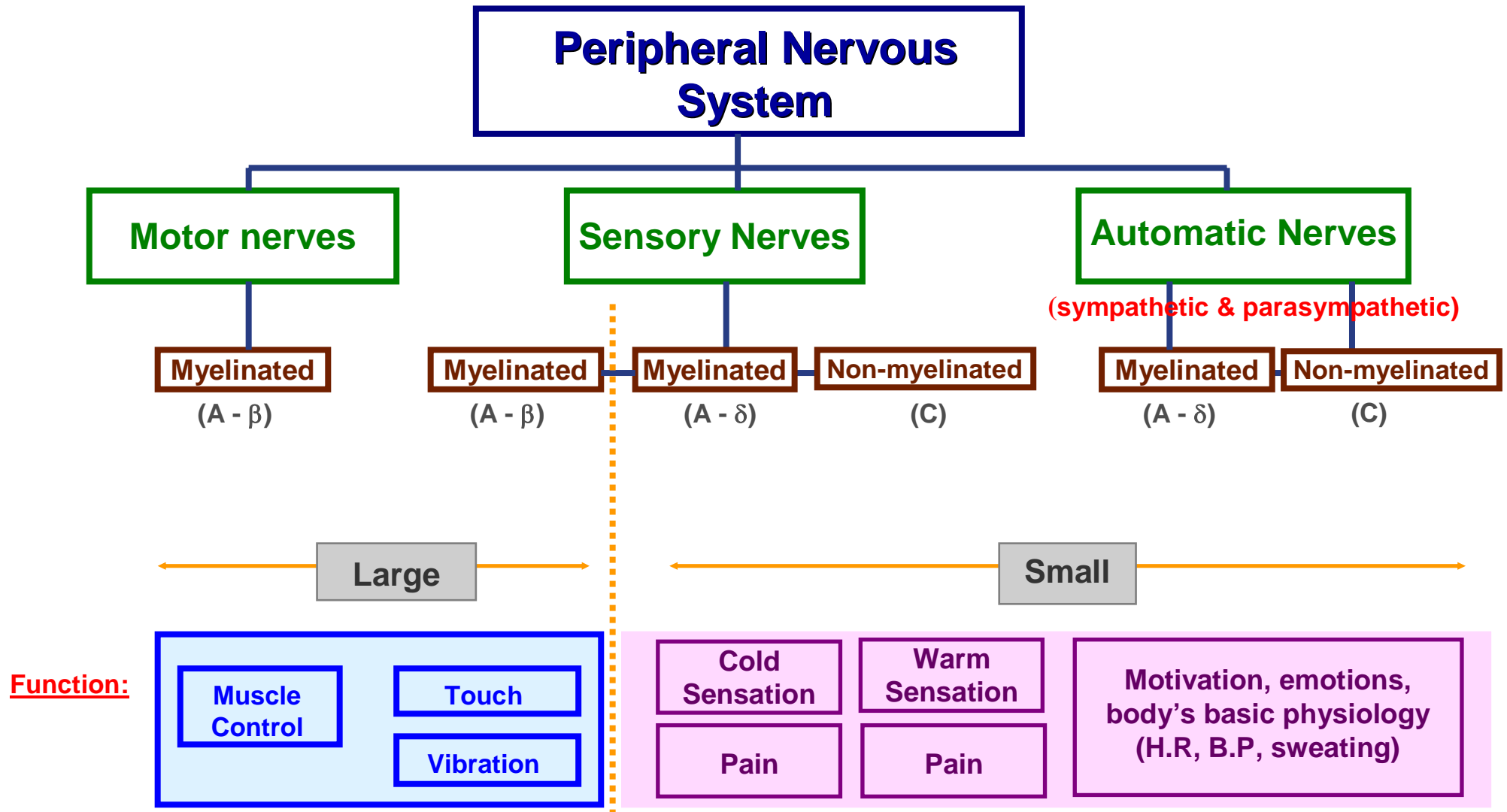
Medical Background

The Human Nervous System

General Layout of the human nervous system:



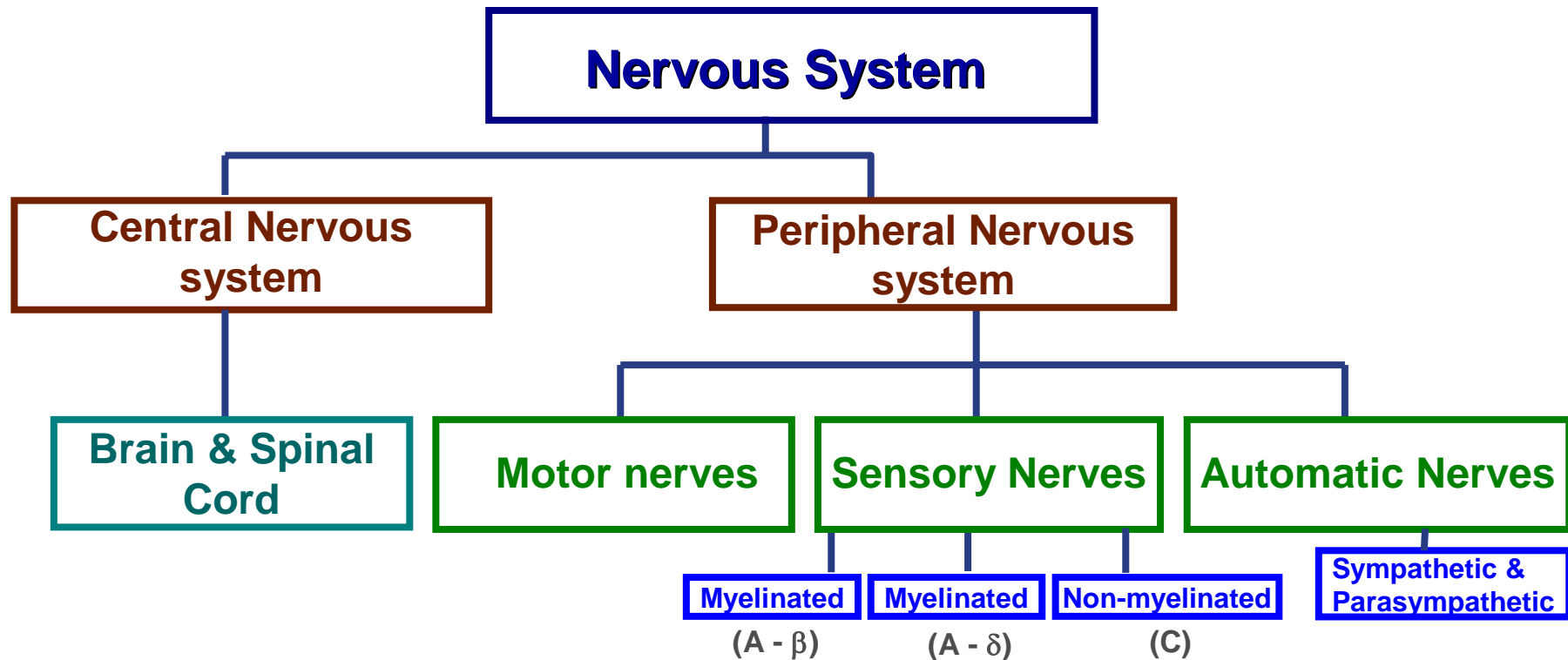
The Peripheral Nervous System



Sensory functions in peripheral nerve

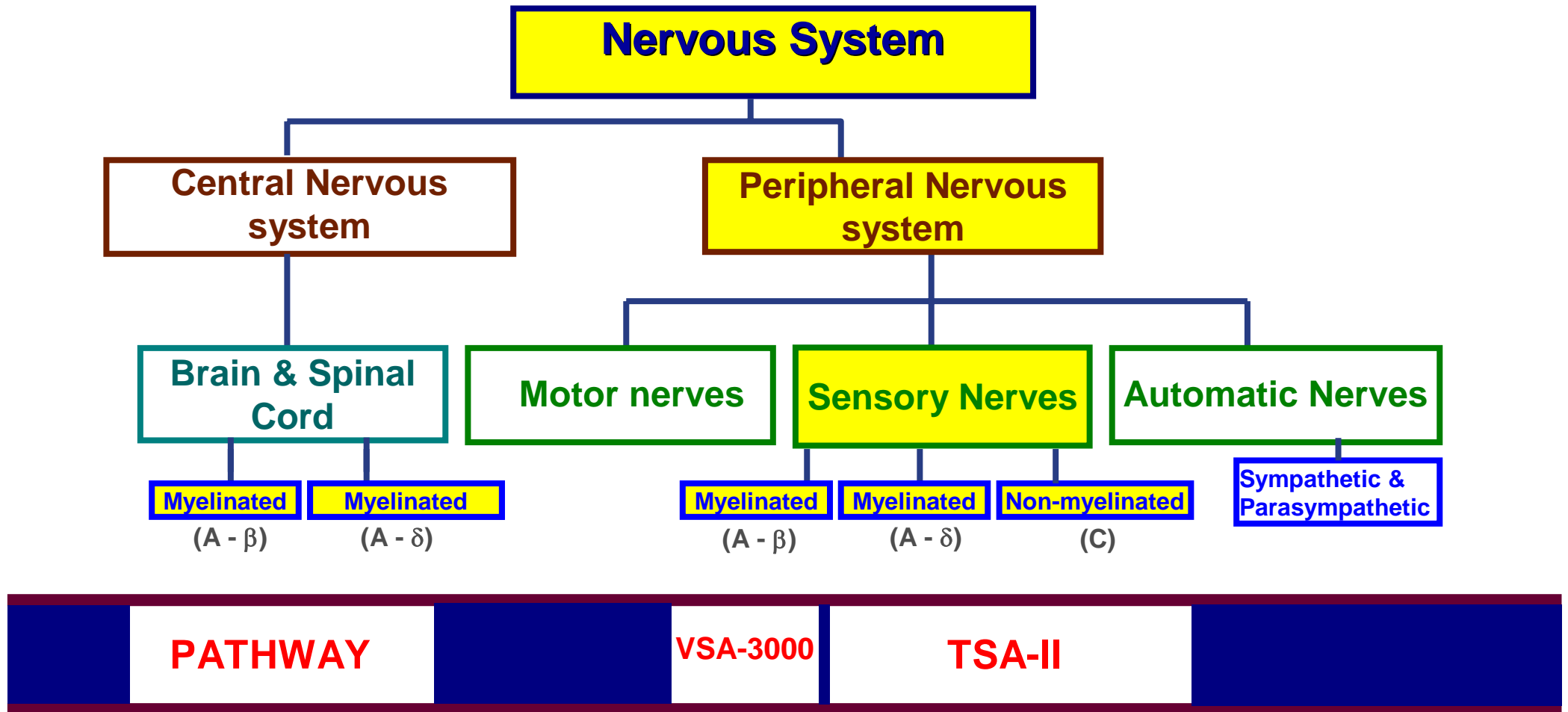
Fiber type	Myelination	Diameter (mm)	Velocity (m/sec)	Function
A - b	+ (Large)	6-20	30-100	Touch, Vibration, Proprioception
A - d	+ (Small)	1-5	5-30	Heat, Cold, First pain (sharp and localized)
C	- (Small)	0.5-2.0	1-2.5	Warmth, Second pain (dull)

Techniques for assessing the nervous system



Bedside testing		Tuning fork Cottonwool	Pin		R-R Interval Orthostatic B.P.
Laboratory techniques	Somatosensory Evoked Potentials	VSA - 3000 NCS / EMG		TSA - II	Autonomic laboratory

Medoc's Expertise



Why QST ?

- * 70% of the peripheral nerve system are **small fibers**
- * Most existing diagnostic devices for the peripheral nerve system examine the large fibers only (EMG, NCV, and EP)
- * QST is the only clinical technique which can diagnose the small fibers

Why QST ?

- * QST is a non-invasive, pain-free technique, which can assist in **early detection, therapy selection and monitoring progression / recovery** of patients with peripheral disorders
- * Combined with the **VSA-3000 Vibratory Sensory**, the TSA-II offers comprehensive assessment of **small & large** peripheral nerve function

Why QST ?

- * The transmission of **pain sensation** is done through the small-caliber **A-Delta & C fibers** only
- * QST is the only technique which can diagnose these **small-caliber fibers**, which constitute the **“Pain Pathway”**
- * In other words, Thermal testing is the only clinical technique which quantitatively assess the function of somatic small fibers – from peripheral receptors through their central nervous system connections

Sensory modalities

TSA & VSA quantify 5 sensory modalities:

Sensation	Thermal Threshold (for normal subjects)	Mediating fibers
Warmth	~ 1-2 ⁰ c above adaptation (30-32 ⁰ c)	C
Cold	~ 1-2 ⁰ c below adaptation (30-32 ⁰ c)	A - d
Heat pain	~ 45 ⁰ c	C, some A - d
Cold pain	~ 5-15 ⁰ c	C and A - d
Vibration		A - b

Range of Sensation



Sensation threshold - the lowest stimulus intensity causing sensation

Pain threshold - the lowest stimulus intensity causing pain

Pain tolerance - the lowest stimulus intensity causing withdrawal

QST – Scientific Findings

- Chronic Pain
- Painful Neuropathies
- Diabetic neuropathy
- Evaluation of Nerve Blocks
- Fibromyalgia
- Complex Regional Pain Syndrome (CRPS)
- Lumbar Radiculopathy
- Trigeminal & Facial Pain
- Headaches
- Central Pain Syndrome (CPS)