

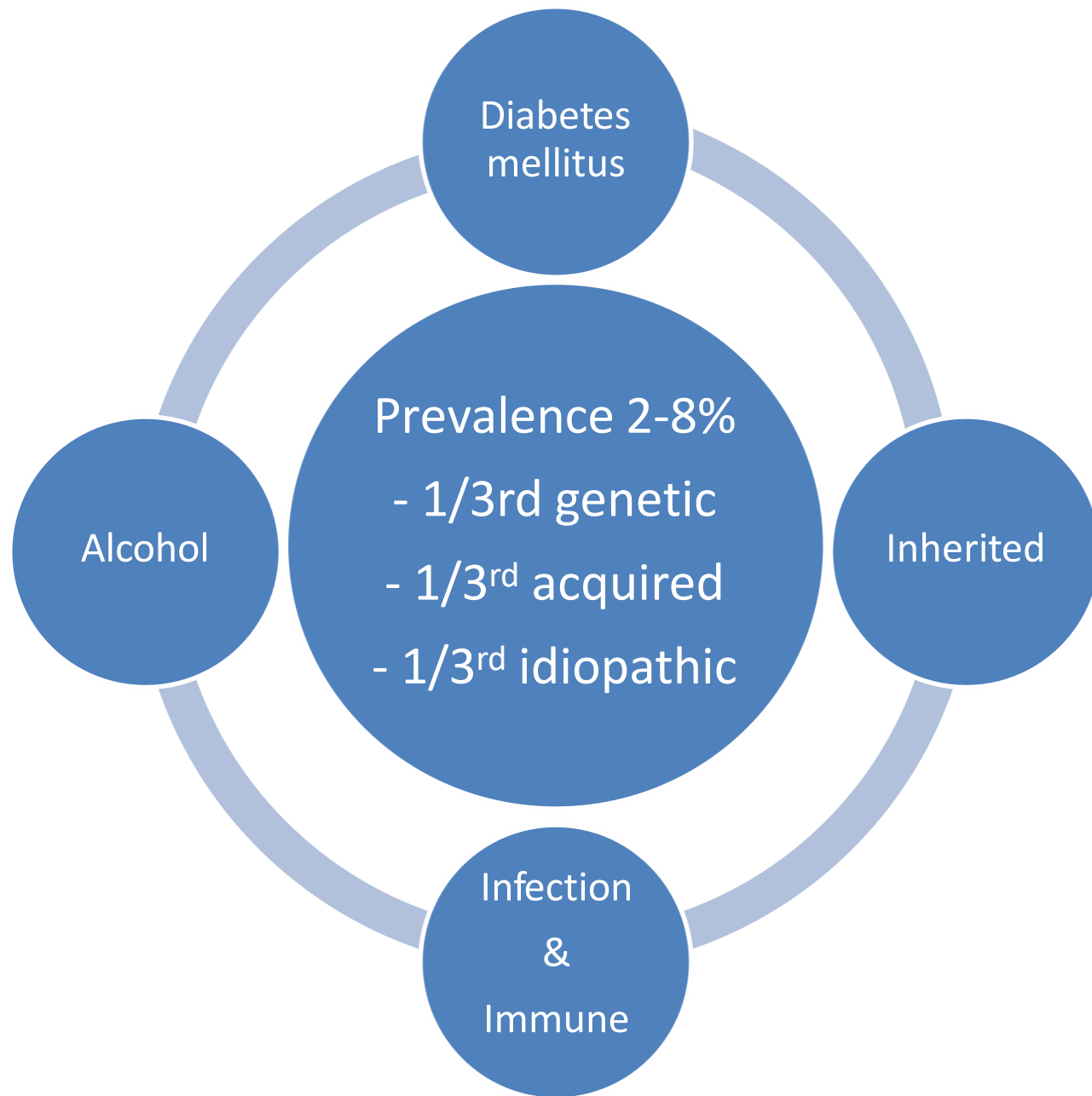
AN APPROACH TO NEUROPATHY

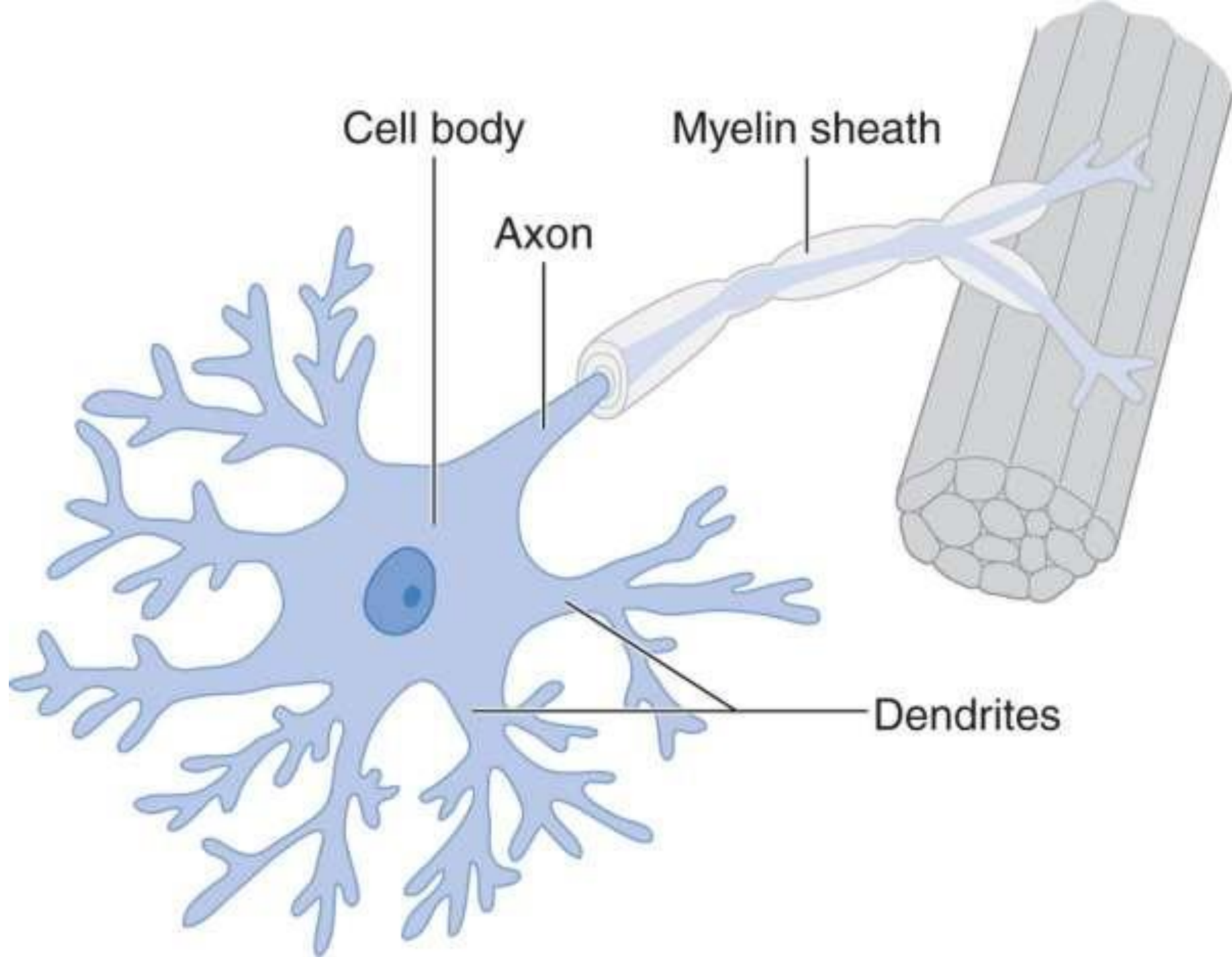
WHAT WE WILL DISCUSS?

- DEFINITION
- TYPES OF NEUROPATHY
- HISTORY AND EXAMINATION
- APPROACH
- INVESTIGATIONS

DEFINITION

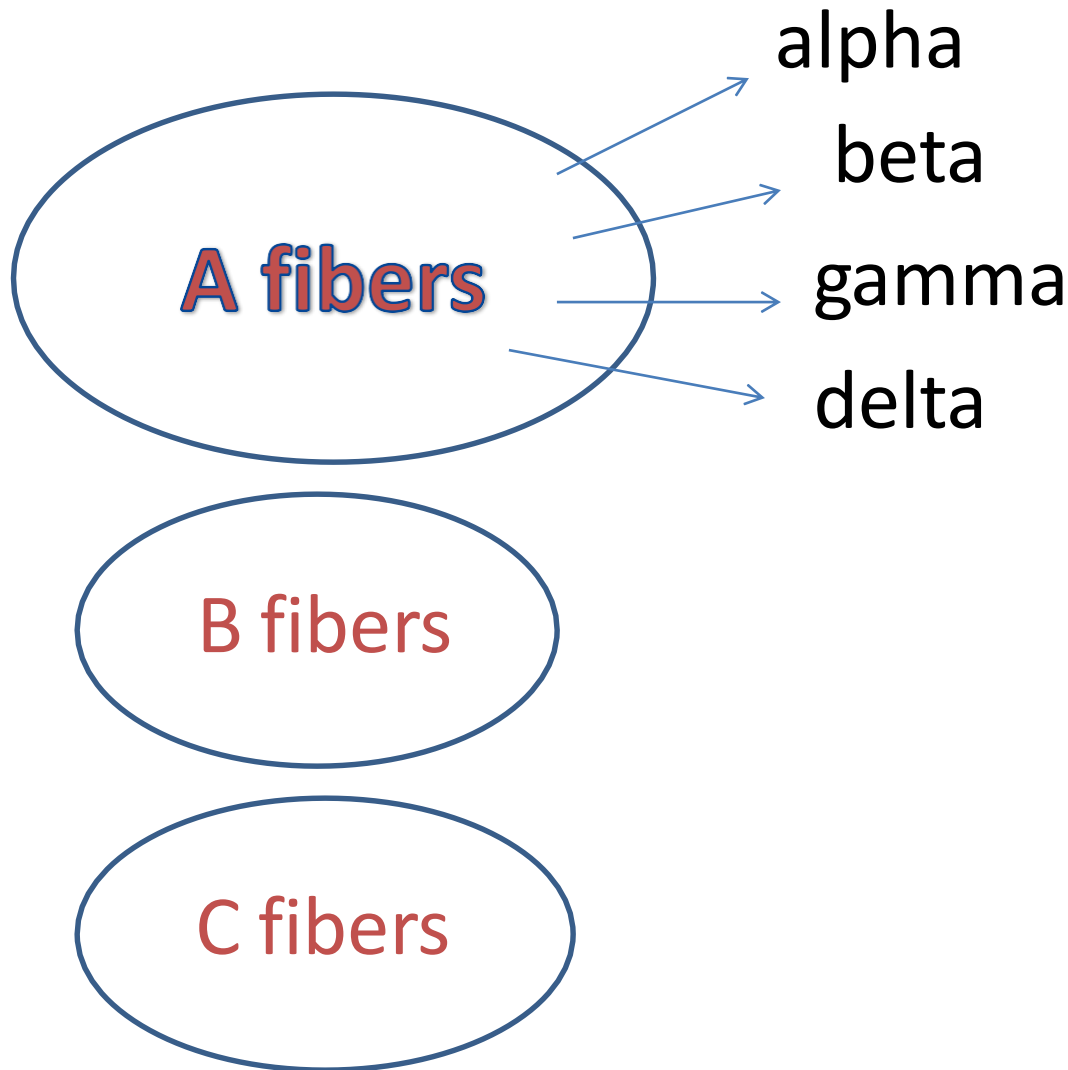
- **Functional disturbance or pathological change in peripheral nervous system**





TYPES OF NERVE FIBERS

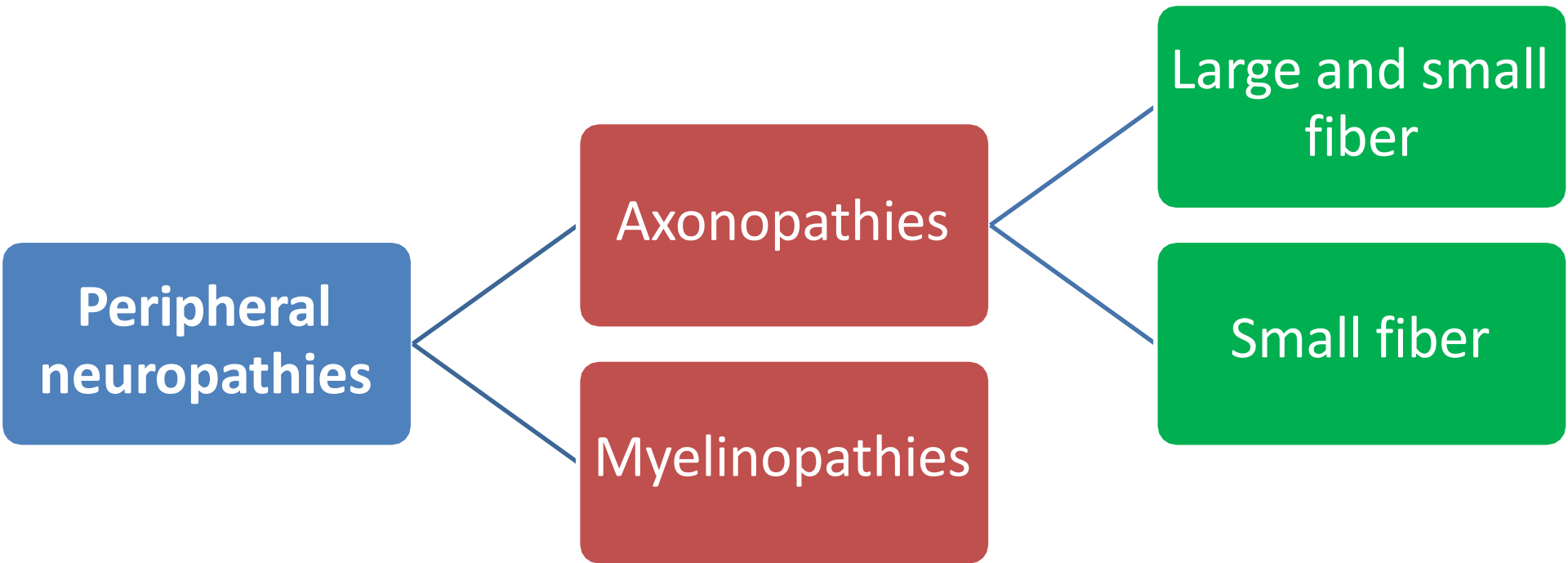
(Erlanger/Gasser classification)



Erlanger /Gasser classification of nerve fibers

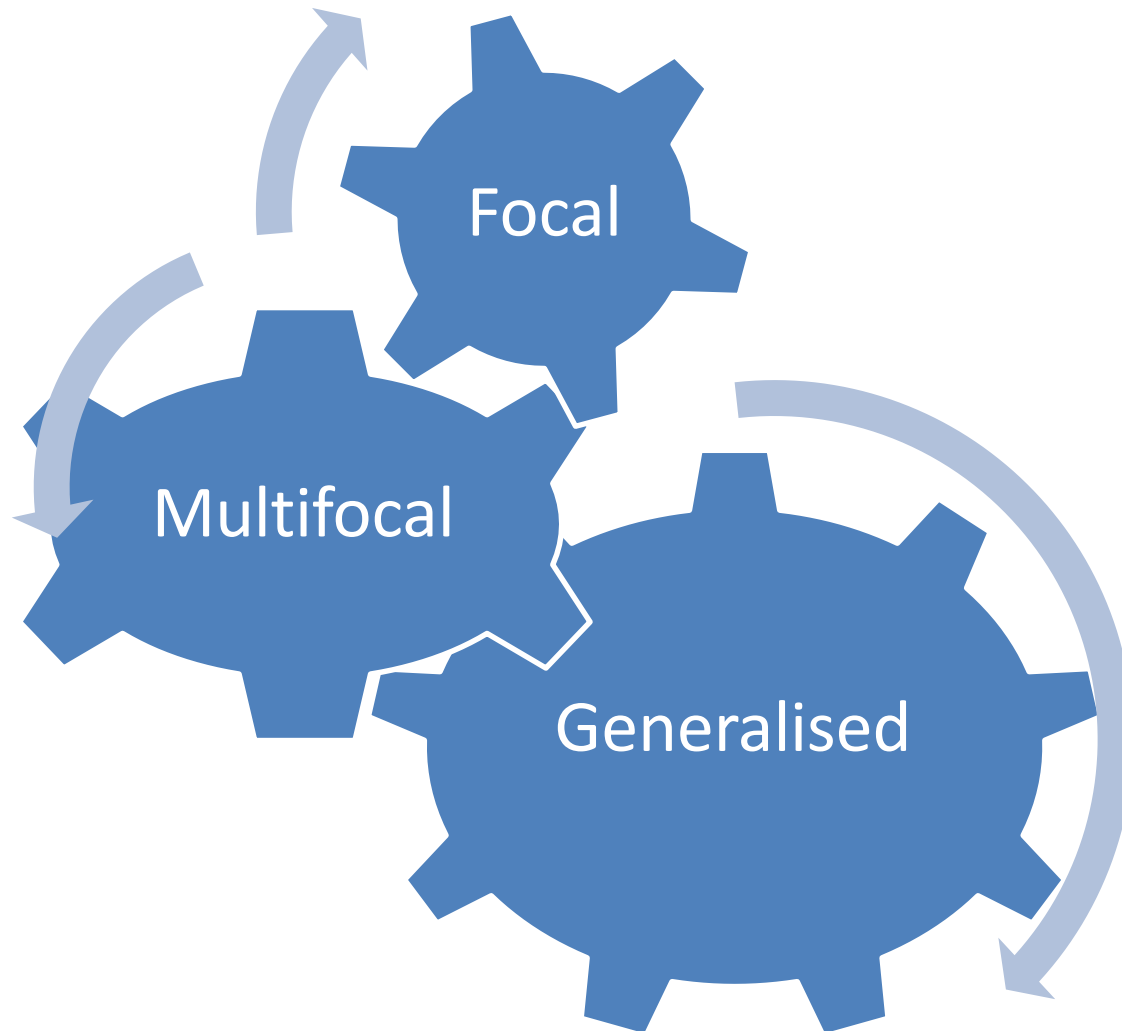
Fiber types	Function	Avg. fiber diameters (μm)	Avg. cond. Velocity (m/s)
A α	Primary muscle spindle afferents, motor to skeletal muscle	15	100 (70-120)
A β	Cutaneous touch and pressure afferents	8	50 (30-70)
A γ	motor to muscle spindle	5	20 (15-30)
A δ	Cutaneous temperature and pain afferents	<3	15 (12-30)
B	Sympathetic preganglionic	3	7 (3-15)
C	Cutaneous pain afferents sympathetic postganglionic	1	1 (0.2-2)

CLASSIFICATION OF PERIPHERAL NEUROPATHIES



IS THIS PERIPHERAL NEUROPATHY ?

TYPES OF NEUROPATHIES



TYPES OF NEUROPATHIES

Focal

- Entrapment Neuropathies

Meralgia paresthetica
Myxedema
Rheumatoid Amyloid
Acromegaly
Hansen's Disease

Multifocal

- Diabetes Mellitus
- Vasculitis
- SLE, PAN
- HIV

TYPES OF NEUROPATHIES

MOTOR

- GBS and CIDP
- Diphtheria and Botulism

AUTONOMIC

- Alcoholism
- Amyloidosis and DM

TYPES OF NEUROPATHIES

SENSORY

Small fiber

- Leprosy
- DM

Large fiber

- Paraneoplastic
- Cisplatin and other chemotherapeutics

TYPES OF NEUROPATHIES

AXONAL

- Insidious
- Glove and stocking pattern
- Preservation of all DTRs except ankle jerk
- Recovery in months to years
- More Residual deformity
- e.g- Vasculitis, Toxins, Metabolic

DEMYELINATING

- Generally Acute
- Minimal sensory loss
- Loss of all DTRs
- Rapid recovery
- Residual deformity minimal
- e.g- GBS, CIDP

HISTORY

- Ethnicity and globalisation
- Dietary History
- Family History
- Drug History(including abused drugs)
- Concurrent systemic Illness
- Toxins exposure
- Behavioural related(HIV, Hepatitis C, Nutritional)
- Vaccination history

APPROACH TO NEUROPATHY

WHAT?

Sensory

Motor

Autonomic

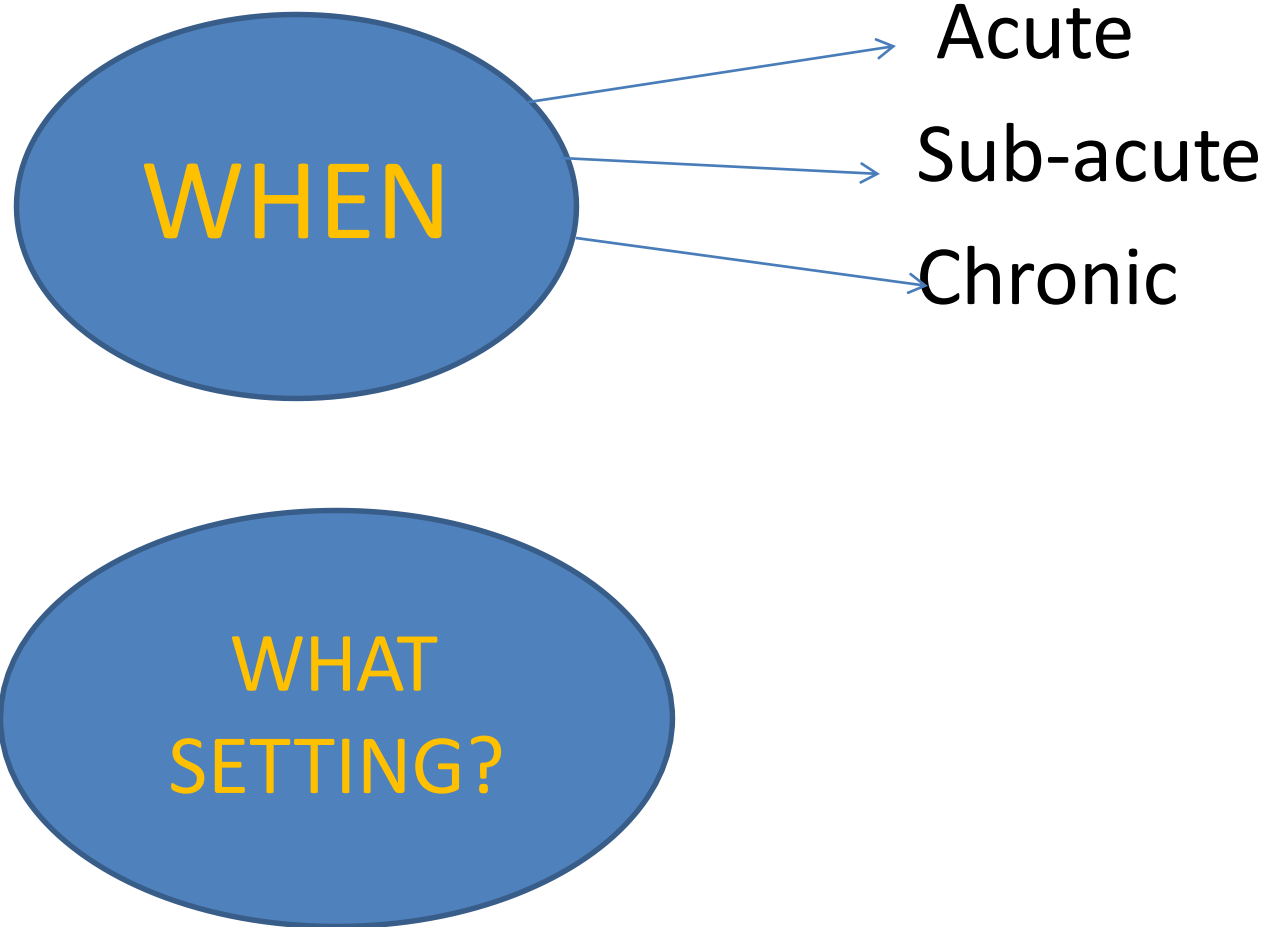
Combinations

WHERE?

Global Distribution

Distribution along nerves

APPROACH TO NEUROPATHY



PHYSICAL EXAMINATION

- **1st step**
- **PNS vs CNS**
- **CNS-** speech, diplopia, ataxia, CN involvement/ **myelopathy**→ bowel, bladder involvement
- Single or multiple nerve root or peripheral nerve plexus
- **PNS-** peripheral nerve roots **vs** plexus
- **Fundoscopy** → optic pallor
 - leukodystrophies and vitamin B12 deficiency

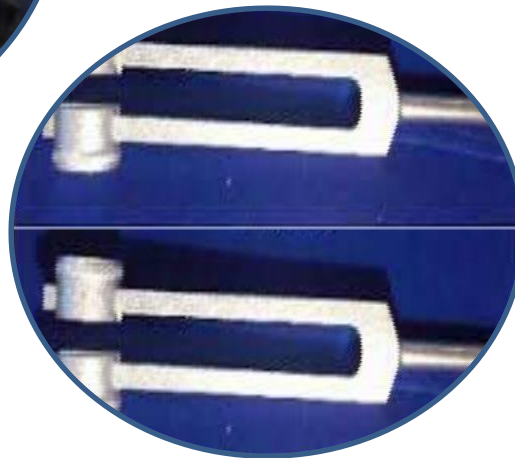
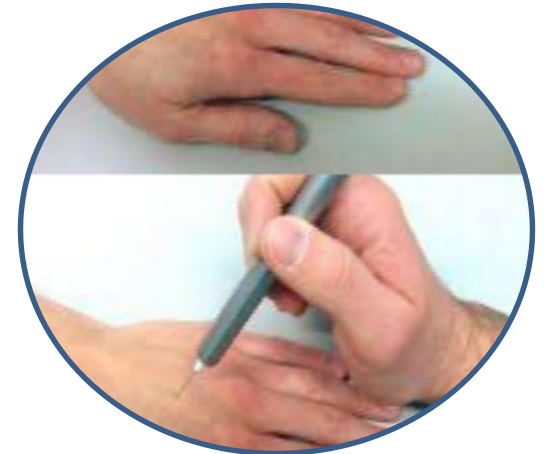
PHYSICAL EXAMINATION

- **Motor examination**
 - fasciculations or cramps, or loss of muscle bulk
- **Tone** → normal or reduced
- **Deep tendon reflexes** → reduced or absent.
- **Bilateral foot drop** → steppage gait
- **Proximal weakness** → inability to squat or to rise unassisted from a chair

PHYSICAL EXAMINATION

- Orthostatic hypotension → **Autonomic fibers involvement**
- Respiratory rate and vital capacity → **GBS**
- Lymphadenopathy, hepatomegaly or splenomegaly, and skin lesions → **Systemic disease**
- Mees' lines → **Arsenic poisoning**

HOW TO TEST ?

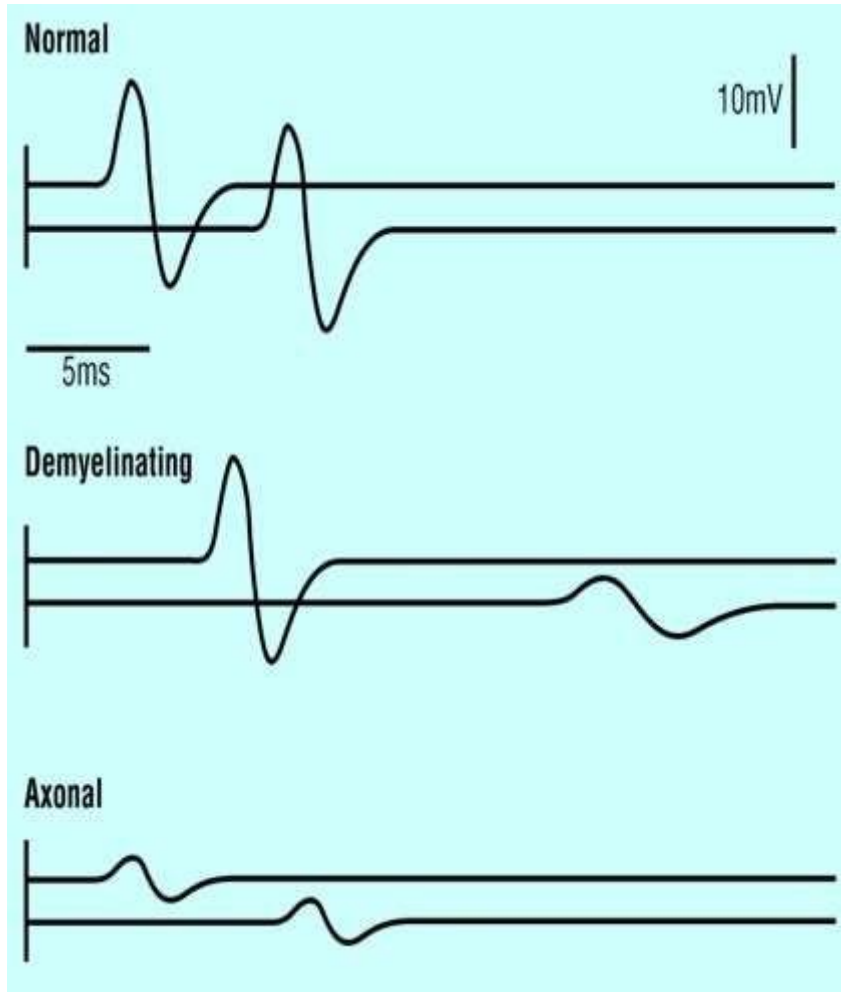


ELECTRODIAGNOSTIC TEST

- Confirmation of presence of neuropathy
- Small or large fiber involved
- Motor, Sensory or mixed
- Axonal Vs Demyelination



ELECTRODIAGNOSTIC TEST



- Velocity of conduction
- Distal latency
- Conduction block
- Temporal dispersion
- F wave latency

NERVE BIOPSY

- If diagnosis is in doubt even after lab and electrodiagnostic findings
- Vasculitis, Amyloid neuropathy, Leprosy, CIDP, Inherited disorders of myelin
- Sural nerve → M/C
- Superficial peroneal nerve – alternative; allows simultaneous biopsy of the peroneus brevis muscle
- Combined nerve and muscle biopsy → Vasculitis

LEPROSY

Tuberculoid → Patch of
superficial sensory loss

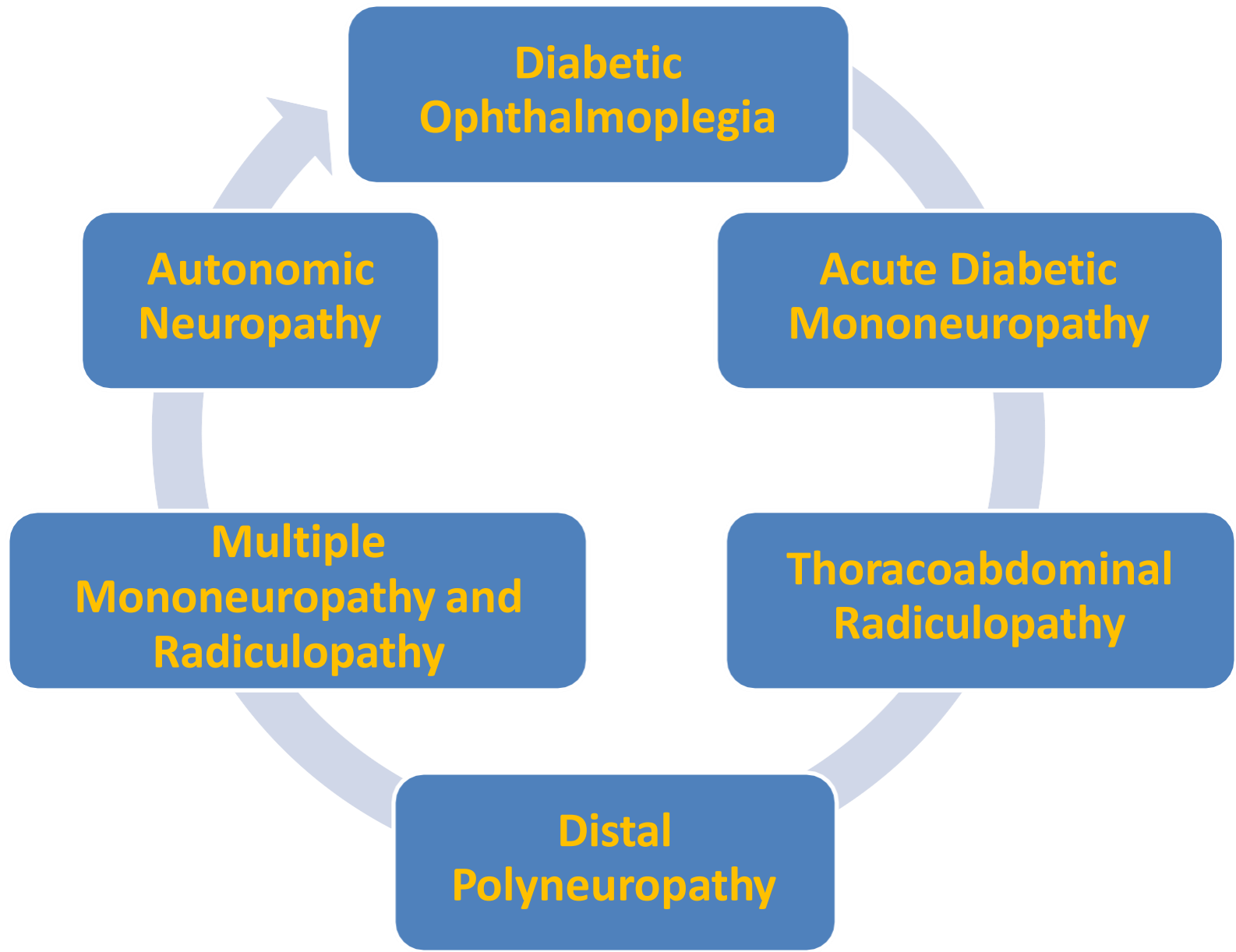
Lepromatous → Widespread
invasion of cutaneous nerve

- Tendon reflex – Preserved
- No autonomic neuropathy

VITAMIN B12 DEFICIENCY

- **Spinal cord, Brain, Optic nerve and Peripheral nerves** all affected
- **Sub-acute Combined degeneration of cord**
- **Visual impairment** → Optic neuropathy

DIABETES MELLITUS



HYPOTHYROIDISM


Neurological endemic cretinism → Proximal limb and truncal rigid-spastic motor disorder


Myxedematous → No spastic rigidity

Loss of reflexes, loss of vibration, position and touch

Sporadic → Delayed tendon reflexes

ALCOHOLISM

- 
- More common in our settings
 - Slow and insidious progression

- 
- Distal and symmetrical involvement
 - Positive sensory symptoms

- 
- Autonomic neuropathy coexistent
 - Multi-factorial damage

THANK YOU