

MODULE 1

TONGUE

- Tongue anatomy
 - Osteofibrous internal skeleton
 - Tongue muscles
 - Extrinsic muscles
 - Intrinsic muscles
 - Superficial mucous membrane
- Tongue afferent innervation
- Papillae and taste buds
 - Papillae
 - Filiform
 - Fungiform
 - Vallate
 - Foliate
 - Taste buds
 - Physiology of taste
- Tongue organs map
- Tongue long kinematic chains
- Hyoid
 - Rules of the hyoid
 - Muscles
 - Superior
 - Inferior
- Treatment
 - Common pairs

ORGANS

- Organ physiology
- Muscle-organ association
- Organ receptors
 - Mechanoreceptors
 - Chemoreceptors
 - Nocioceptors
- Visceral referred pain
- Visceral parietal pain
- Organ reflexes
 - Viscerovisceral reflexes
 - Viscerosomatic reflexes
 - Somatovisceral reflexes
 - Somatosomatic reflexes
- Autonomic nervous system

- Sympathetic functions
 - Parasympathetic functions
- Cranial nerves carrying parasympathetic information
- Rules of the viscera
- Differentiating organ vs. supraspinous ligament dysfunctions
- Peritoneal fascia
- Treatment
 - Common pairs
- Digestive sequence dysfunctions

ILIOCECAL VALVE

- Location
- Function
- Anatomy
- Mechanics of control over ICV
- Symptoms of dysfunction
- Common causes of dysfunction
- Open ICV
 - Organ dysfunction
 - Emotions
 - Nutrition
 - Related muscles
 - Cranial fault
 - Spinal level
 - Meridian points and Chapman points
- Closed ICV
 - Organ dysfunction
 - Emotions
 - Nutrition
 - Related muscles
 - Cranial fault
 - Spinal level
 - Meridian points and Chapman points
- Treatment

ENTEROGASTRIC REFLEX

- Common disorders caused by stomach dysfunction
- Classical causes of underworking stomach
- Factors monitored by enterogastric reflex
 - Physical
 - Chemical
- Enterogastric nervous reflexes
 - Mediating factors
- Overactive enterogastric reflex

- Presentation
- Treatment
- Underactive enterogastric reflex
 - Presentation
 - Treatment

NEUROLOGICAL TOOTH

- Anatomy of the tooth
 - Crown
 - Root
- Teeth numbers
- Muscle-teeth relationships
- Challenge and manipulation of teeth
- Teeth VRP's
- Treatment
- Nutrition

SPONDYLOGENIC REFLEXES

- Background
- Use of therapy localization
- Testing
- Referred pain patterns
 - Anterior trunk referred pain
 - Posterior trunk referred pain
 - Pelvic referred pain
 - Scapula referred pain
 - Pelvic ligament referred pain
- Treatment

BARORECEPTORS

- Control mechanisms of cardiac activity
 - Intrinsic
 - Extrinsic
- Autonomic innervation of the heart
 - Sympathetic
 - Parasympathetic
- Mechanisms of control of blood pressure
 - Local mechanisms
 - Neural mechanisms
 - Humoral mechanisms
- Autoregulation mechanisms
 - Myogenic mechanism
 - Tissue pressure

- Release of metabolites and local temperature
- Metabolic mediators
 - Vasoconstrictors
 - Vasodilators
- Relationship between blood pressure and baroreceptors
 - Baroreceptor reflex
- Baroreceptor response ranges
 - Carotid baroreceptors
 - Aortic baroreceptors
- Central Ischemic Response
- Effect of temperature on blood pressure
- Effect of emotional stress or pain on blood pressure
- Renin-Angiotensin system
 - Physiological mechanisms
 - Changes in peripheral resistance
 - Changes in cardiac structure
- Blood pressure ranges
 - Hypotension
 - Adrenal function
 - Hypertension
 - Nocioception
 - Major organs
- Blood pressure nutrition
- Treatment

ALKALOSIS

- Background
- Role of and absorption of calcium in the body
- Common causes
- Symptoms of dysfunction
- Nutrition

LYMPHATIC SYSTEM

- Functions
 - Immune system
 - Fat transport
 - Fluid balance
- Lymphatic ducts
- Components of lymphatic system
- T cells and B cells
- Lymphatic organs
 - Lymph nodes
 - Spleen
 - Thymus gland

- Lymphatic nodules
 - MALT
 - Tonsils
 - Peyer's patches
- Lymphatic circulation
- Lymphatic drainage
- Elephantitis/lymphedema
- Lacteals
- Symptoms of lymphatic dysfunction
- Common causes of dysfunction
- Testing
- Nutrition

KREBS CYCLE

- ATP production
 - Krebs cycle
 - Citric acid cycle
 - Tricarboxylic acid cycle
- Electron transport chain
- Citric acid cycle factors
 - Main factors
 - Lesser factors
- Common sources of CAC and ETC dysfunction
- Lipoic acid
 - Mercury toxicity
- CO₂
- Treatment
- CAC and cranial faults
- Urea cycle
- GABA
- Nutrition
 - Coenzyme Q10

METABOLISM OF FATTY ACIDS

- Three families of natural fats and associated prostaglandins
 - Fats 1-PG 1
 - Fats 2-PG 2
 - Fats 3-PG 3
- Dietary sources of three families of fats
- Steps in PG production from fat in diet
- Aspirin and other NSAIDs
 - Physiologic effects
 - Testing
- Leukotrienes and thromboxanes

- Symptoms of EFA metabolism dysfunction
- Treatment

MODULE 2

NEUROANATOMY

- Major regions of the brain
 - Prosencephalon
 - Telencephalon
 - Diencephalon
 - Mesencephalon
 - Rhombencephalon
 - Metencephalon
 - Myelencephalon
- Organization of brain tissue
 - Gray matter vs. white matter
- Cranial meninges
 - Dura mater
 - Arachnoid mater
 - Pia mater
- Cranial dural septa
- Brain ventricles
- Cerebrospinal fluid
- Blood-brain barrier
- Cerebral cortex
 - Motor areas
 - Sensory areas
 - Association areas
- Basal nuclei
- Diencephalon
 - Thalamus
 - Hypothalamus
 - Epithalamus
- Brain stem
 - Midbrain
 - Pons
 - Medulla oblongata
- Cerebellum
 - Cerebellar peduncles
- Functional brain systems
 - Limbic system
 - Reticular formation

CRANIAL NERVES

- Rules of brain nuclei

- Abnormal breathing patterns
 - Cheyne-Stokes
 - Central neurogenic hyperventilation/Kussmaul's hyperventilation
 - Apneusis
 - Cluster breathing
 - Ataxic breathing
- Cranial nerves
 - Olfactory nerve
 - Optic nerve
 - Pupillary light reflex
 - Oculomotor nerve
 - Five systems of eye movement
 - Gaze shifting
 - Saccades
 - Vergence
 - Smooth pursuit
 - Gaze holding
 - Vestibular ocular reflex
 - Optokinetic reflex
 - Trochlear nerve
 - Bielschowsky's head tilt test
 - Trigeminal nerve
 - Ophthalmic division
 - Maxillary division
 - Mandibular division
 - Abducens nerve
 - Facial nerve
 - Differentiating UMN vs. LMN lesions
 - Vestibulocochlear nerve
 - Vestibular nerve
 - Semicircular canals
 - Cochlear nerve
 - Glossopharyngeal nerve
 - Vagus nerve
 - Accessory nerve
 - Hypoglossal nerve
- Stimulation of cranial nerves
- Treatment

BASAL GANGLIA

- Classification
 - Structures
- Neurotransmitters
- Function
- Pathways
 - Direct pathway

- Indirect pathway
- Hyperdirect pathway
- Dopaminergic and cholinergic modulation
- Basal ganglia disorders
 - Hypokinetic disorders
 - Parkinson's disease
 - Hyperkinetic disorders
 - Huntington's disease
- Basal ganglia connections throughout the brain
- Limbic system
 - Structures
- Testing
- Treatment
- Receptor pools
 - Testing
 - Treatment

PRIMITIVE REFLEXES

- Developmental background
- Integration of primitive reflexes
- Primitive vs. lifespan reflexes
- Role of reflexes in survival and developing future movement
- Reflexes as diagnostic tools
- Signs of neuro-developmental delay
- Primitive reflexes
 - Fear paralysis
 - Stimulus
 - Inhibition pattern
 - Moro reflex
 - Stimulus
 - Inhibition pattern
 - Startle reflex
 - Stimulus
 - Inhibition pattern
 - Palmar mandibular/Babkin reflex
 - Stimulus
 - Inhibition pattern
 - Palmar mental
 - Stimulus
 - Inhibition pattern
 - Palmar grasp
 - Stimulus
 - Inhibition pattern
 - Plantar grasp
 - Stimulus
 - Inhibition pattern

- Symmetrical tonic neck reflex
 - Stimulus
 - Inhibition pattern
- Asymmetrical tonic neck reflex
 - Stimulus
 - Inhibition pattern
- Sucking
 - Stimulus
 - Inhibition pattern
- Rooting/Search
 - Stimulus
 - Inhibition pattern
- Babinski
 - Stimulus
 - Inhibition pattern
- Postural reflexes
 - Crawling
 - Stimulus
 - Inhibition pattern
 - Swimming
 - Stimulus
 - Inhibition pattern
 - Head and body righting
 - Stimulus
 - Inhibition pattern
 - Parachuting
 - Stimulus
 - Inhibition pattern
 - Tonic labyrinthine
 - Stimulus
 - Inhibition pattern
 - Pull up
 - Stimulus
 - Inhibition pattern
 - Landau
 - Stimulus
 - Inhibition pattern
 - Spinal galant
 - Stimulus
 - Inhibition pattern

PERIPHERAL NERVES

- Embryonologic development
- Anatomy of nerves
 - Structures
 - Blood supply to nerves
- Effect of endoneurial ischemia

- Classification of nerve injuries
 - Physiologic conduction nerve block
 - Neurapraxia
 - Axonotmesis
 - Neurotmesis
- Wallerian degeneration
- Localization of lesion in PNS
 - Radiculopathy
 - Plexopathy
 - Mononeuropathy
 - Polyneuropathy

**Spinal level, innervation, and clinical significance of each of the peripheral nerves below*

- Upper extremities
 - Cervical plexus
 - Motor nerves
 - Ansa cervicalis
 - Phrenic n.
 - Cutaneous nerves
 - Lesser occipital n.
 - Greater auricular n.
 - Transverse cervical n.
 - Supraclavicular n.
 - Brachial plexus
 - Branches from roots
 - Dorsal scapular n.
 - Long thoracic n.
 - Branches from trunks
 - Suprascapular n.
 - Subclavian n.
 - Branches from cords
 - Lateral cord
 - Lateral pectoral n.
 - Posterior cord
 - Upper subscapular n.
 - Thoracodorsal n.
 - Lower subscapular n.
 - Medial cord
 - Medial pectoral n.
 - Medial cutaneous n. of arm
 - Medial cutaneous n. of forearm
 - Terminal branches
 - Ulnar n.
 - Radial n.
 - Musculocutaneous n.
 - Axillary n.
 - Median n.
- Lower extremities

- Lumbar plexus
 - Iliohypogastric n.
 - Ilioinguinal n.
 - Genitofemoral n.
 - Lateral femoral cutaneous n.
 - Femoral n.
 - Saphenous n.
 - Obturator n.
- Sacral and coccygeal plexuses
 - Superior gluteal n.
 - Inferior gluteal n.
 - Sciatic n.
 - Tibial n.
 - Common peroneal n.
 - Posterior femoral cutaneous n.
 - Pudendal n.
- Other nerves
 - Intercostal n.
 - Superior cluneal n.