

# Evidences and Experiences



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# Neurological Disorders

Functional and Psycho-Socio-Economic Repercussions

“When there is harmony  
between the mind, heart  
and resolution then  
nothing is impossible.”

~RugVeda

## Learning Units:

- Concept of neurological disorders in Ayurveda and Saankhya-Yoga
- Psycho-physiological disturbance of Arjuna in Geeta
- Situation analysis- International & National
- ‘WHO Global burden of neurological disorders’ -2012
- Neurological dysfunction
- Span of neurological disorders
- Variable onset and the course
- Neuroepidemiologic surveys India and remedies suggested
- NCDs in low-income countries
- Health indicators
- Health and Rehabilitation as obligations of Indian Government
- Diagnostic tests in neurological disorders
- Status of neuro-rehabilitation
- Prevention at three levels: Primary, Secondary and Tertiary.
- Accident prevention
- Population-wide prevention
- Prevention of Goitre
- Polio immunisation in India
- Community-based rehabilitation
- Stigma
- Plight of the elderly
- Deaths
- Health indicators in the millennium
- Improving Disability Statistics
- Health Promotion in a Globalized World
- Healthy People
- UNDP’s Human Development Index (HDI)
- Expenditure on health
- Benefits of Physiotherapy in neurological disorders

# Management of Pain

Pleasures are of  
size of grain; sorrows  
like mountains.

~ Saint Tukaram

## Learning Units

- Historical episodes of sage Maandavya, Bhishma and Karna
- General notions from experience of pain
- Indicators of pain and altered behaviour
- Physiology of pain
- Model of Three-dimensions of pain:
- Pain in the aged
- Beliefs and barriers for pain
- Assessment-McGill Pain Questionnaire
- Self-Reported Information
- Pain thresholds and tolerance
- Adverse neural tension tests
- Neuro-dynamics of Yogaasanas
- Management of chronic pain
- WHO Analgesic ladder
- Perception of pain by patients, health workers and the human right
- Drugless approaches- Physiotherapy Assessment
- Manual therapies
- Backache the most common variety among pain
- Guidelines common basis
- Yellow flags and Red flags Management
- Physiotherapy in pain
- Non-pharmacological-Orthotic, Surgical
- Holistic management of pain

# 03

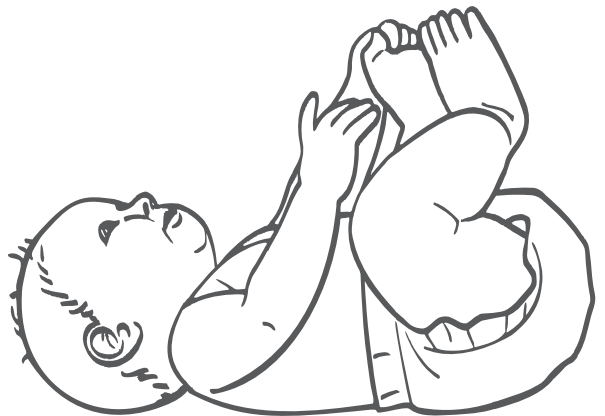
## Influence of Development on Neuro Physiotherapy

“The key to human development is building on who you already are.”

~Tom Rath

### Learning Units

- Developmental features - embryonic and in infancy
- Evolution and Dissolution of the CNS
- The Integrative Action of the Nervous System
- Gesell's seven morphogenetic principles in child development.
- Mcgraw M B Neuromuscular maturation of the human infant.
- Development of Thinking by piaget.
- Recovery in Stroke hemiplegia by Twitchell
- Bobaths NDT
- Rood's : Sensory stimulation, Developmental purposeful response
- Vojta's neuro-kinesiologial diagnostics & therapy
- Motor development scales in infants
- Thalen used kinematics, EMG, and behavioural observation in new born
- Developmental Coordination Disorder.
- Test of Gross Motor Development, Gross and the Fine Motor skills, & Red flags.
- Development and plasticity.



# 04

## Neuro-physiotherapy Techniques for sensori motor learning and function

“I have no special talents. I am only passionately curious.”

~Albert Einstein

### Learning Units:

- Bernstein- The coordination and regulation of movements.
- Jean Ayres- Sensory Integration (SI)
- Gibson and Gibson theory-development of perception through exploration
- Nashner-moving platform and adaptations
- Thelen-Development as a dynamic system
- Cabot-Knott-Voss-Proprioceptive
- Neuromuscular Facilitation (PNF) techniques
- Brunnstrom -Recovery stages in hemiplegia and anti-synergic patterns.
- Grading PNF patterns qualitatively
- Remodelled Bobath's approach
- Some clinical studies in physiotherapy approaches
- Carr and Shepherd- Motor Relearning Programme: (MRP)
- Combination modalities with Functional electrical stimulations
- Brain-Computer Interfaces (BCIs)
- Task-Oriented (TO) Approach in Occupational Therapy
- American Speech-Language and Hearing Association advice
- Conductive education
- Yoga-abundant Psycho-sensorimotor variation in tasks for learning
- Yogic methods of training and Uddiayana Bandha
- Learning and plasticity of central nervous system
- Neural Darwinism Some experience in motor control learning & compensatory mechanisms
- Stem cell plasticity
- Safety of stem cell clinical trials
- Some experiences in motor control

# 05

## Polynuropathies and Peripheral Nerve Lesions

The greatest discovery  
of my generation is that  
a human being can alter  
his life by altering his  
attitudes of mind.

~William James, psychologist

### Learning Units:

- Introduction to principles of electrotherapy in nerve lesions
- Assessment by conventional methods and EMG-NCV
- Case for using needle EMG by a trained PT
- Electrotherapy by long surged pulses to prevent contractures .
- Polyneuropathies
- Plastic orthoses
- Reflex Sympathetic Dystrophy
- Acute Autonomic Neuropathies
- American Society for Surgery of Hand scale based on the recovery of sensations
- Semmes-Weinstein Monofilament for sensory testing
- Conventional electrodiagnosis
- Sensory threshold assessment
- Accommodation in the sensory nerves
- Role of physiotherapy in management of polyneuropathies
- Traumatic peripheral nerve injury (TPNI)
- Nerve entrapment
- Optimal timing for an electrodiagnostic study
- Results of nerve repair or nerve graft surgery
- Principles for deciding tendon transfers
- Neurodynamics in clinical practice
- Intervention in PNS lesions
- Patient-family information-education-communication.
- Biofeedback and electrical stimulation.
- Sensory retraining-desensitisation
- Nerve mobilisation
- Aids and appliances.



# Spinal cord lesions

“I see hope as the very heart of healing. For those who have hope it may help some to live longer, and it will help all to live better.”

~Jerome Groopman, MD

## Learning units :

- Variety of Spinal cord lesions
- Spina bifida
- Prenatal Diagnosis
- Postnatal Diagnosis
- Closure of neural defect
- Management of Myelomeningocele Study (MOMS)
- Endoscopic foetal surgery
- Pressure sores
- Physiotherapy in infantile age
- Orthotic management
- Spinal cord injury
- Rehabilitation prognosis
- Muscle strengthening
- Wheelchair management
- Combined electrical stimulation-EMG biofeedback
- Motor Index Score
- ANS assessment
- Neurogenic bladder
- Use of US scanner in non-invasive assessment
- Sacral nerve stimulators
- Bowel management
- Quick guide to neurogenic bowel management
- Sexual dysfunction
- Physiotherapy in SCI
- Strategies used for ulcers
- Gait Training
- Body weight support (BWS) system
- Sensory-motor function recovery
- Robotics in SCI
- Outcome measures in SCI
- Special equipment for SCI persons



# Cerebral Palsy

Being deeply loved by a  
child with special needs  
gives you strength.  
While loving a child  
with special needs gives  
you courage.

## Learning Units:

- Familiar clinical picture
- Developmental programmes
- Risk factors > High risk babies management > Observation for vital parameters > Quality
- Qualities of a CP-therapist
- Little's disease - Rosenbaum definition
- Previous definition and discussion
- The Gesell Developmental Schedule
- Incidence and prevalence
- Risk factors as per National Institute of Neurological Disorders and Stroke USA
- High risk babies and management as per Guideline
- Influence of NICU environment on CNS development
- Observation for vital parameters and physiological stability a priority
- Motor behaviour
- Goals of early intervention
- Human incubator-Kangaroo care
- Associated disabilities in North India
- Disarthrias and speech therapy
- The Feldenkrais Method for Cerebral Palsy
- Recommendations
- Clinical classification and CP Evaluation
- Balance training
- Functional training
- Hand function
- Pre-speech preparatory training
- Cognitive aspects
- Total communication approach
- Specificity
- Management of deformities
- Surgical approach
- Our contribution to CP research
- Cortical mapping
- Technique of SMU training
- Quality of life
- Disability Evaluation
- Some achievers
- Some movies on brain damaged children
- Sensitizing the public on the issue

# Stroke Hemiplegia

Strength doesn't comes  
from what you can do.  
It comes from overcoming  
the things once you  
thought you couldn't.

~Rikki Rogers

## Learning Units:

- Stroke Hemiplegia: A typical stroke hemiplegic
- Stroke: Risk factors and outcome
- Stroke rehabilitation Guidelines.
- Mortality, function and disability - A hidden epidemic
- Urinary problems
- Early rehabilitation tailor-made physiotherapy
- Care after stroke or transient ischaemic attack TIA
- Falls in old persons and stroke
- Sensory electrical stimulations.
- EMG-Biofeedback in spastic hemiplegics
- Best Evidence Synthesis (BES)
- Robotics
- Hand Grip strength
- Work conditioning and work hardening
- Ergonomic study design
- Quantitative voluntary control grading
- Criteria for Grading Yogaasana
- Social problems



# Parkinson's Disease and Alzheimer Disease

## Assessment and Management:

As you get older 3 things happen, one is that your memory goes; other two things I don't remember

- Sir Norman Wisdom

### Learning Units:

- Epidemiology
- Clinical Presentation
- Diagnosis
- Non-motor Symptoms
- Drug therapy
- Speech therapy
- What form of physiotherapy is most effective in the treatment of Parkinson's disease?
- Yoga programme as the best form for postural stability
- 1/3<sup>rd</sup> cases of PD progress to Alzheimer's disease
- Structural changes in brain in Alzheimer's disease
- Imaging in diagnosis cognitive domains impaired in AD.
- Carers' role largely is unrecognised



# 10

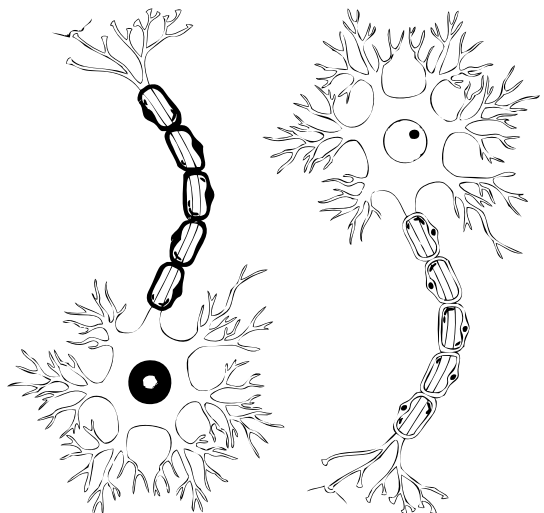
## Cerebellar disorders and management

“The brain is a monstrous, beautiful mess. Its billions of nerve cells - called neurons - lie in a tangled web that displays cognitive powers far exceeding any of the silicon machines we have built to mimic it.”

~ William F. Allman, Science Writer

### Learning Units:

- Cerebellum at a glance
- Cerebellar signs disturbing balance
- Clinical Observation and examination
- Ataxias
- Neocerebellar lesions
- Results of intensive training
- The physiotherapy program
- Commonly reported interventions
- Evidences for functional recovery
- Saccadic dysmetria
- Transient tremor control
- Cerebellar nuclei and input output connections
- Coordination and motor learning theories



# Myopathies

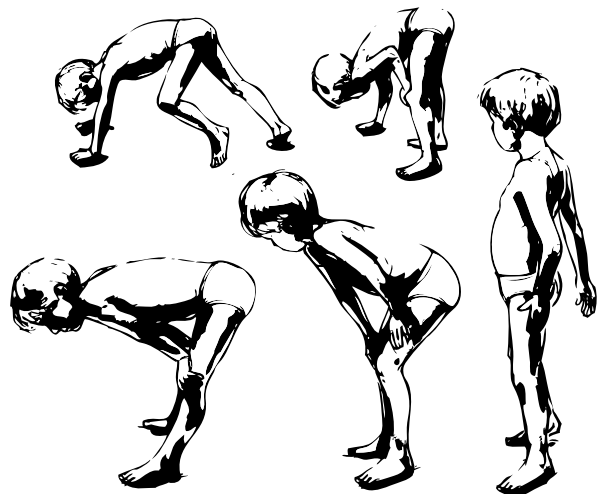
## Diseases of muscles

The capacity to blunder slightly is real marvel of DNA. Without this special attribute we would still be anaerobic bacteria and there would be no music.

~Erma Bombeck

### Learning Units:

- A Case Interview
- ICD-10 codes
- Myopathies are listed inherited forms
- Acquired myopathies
- Myasthenia Gravis
- Duchenne muscular dystrophy
- Becker muscular dystrophy
- Limb-girdle muscular dystrophy
- Facio-scapulo-humeral muscular dystrophy
- History and clinical examination for diagnosis
- Endocrine myopathies
- Metabolic myopathies
- Myopathy from infectious diseases
- Drug-induced myopathies
- Critical illness myopathy (CIM)
- Role of EMG and muscle biopsy
- Cardiomyopathy
- Physiotherapy management
- Symptoms of respiratory failure
- Use of different gadgets



“You can have brilliant ideas, but if you can’t get them across, you ideas wont get you anywhere.”

~Lee Iacoca

### Learning Units:

- **Communications:** Types
- Team approach-Interdisciplinary disussions
- Technical terminology Vs popular science terms
- Training in communications
- Brochures, pamphlets to patient-family
- Professional Records
- Interdisciplinary communications
- Content and timing of communication
- Communication between a health professional and parents of a cerebral palsy child.
- Examination of communication: How to survive a heart attack when alone
- Communications must disseminate the proven information
- Communication skill - a hall-mark of an effective health worker
- Indian Screen: Bollywood & health messages
- Childhood disability and the media
- Right communication attitudes
- A problematic communication
- Information to public should be pre-tested
- Word of mouth is one of the best means of communication
- Manusmruti an ancient law-book advocates Speak the Truth, Speak the likable one (Priya); Not the non-truth, Not that hurts others! "
- Interview with a middle aged stroke hemiplegic patient.
- Increasing audience knowledge and awareness of a health issue
- Influencing behaviors and attitudes  
Health literacy

# Carers

“In nothing do men  
more nearly approach  
the gods than in giving  
health to men.”

~Cicero

## Learning Units:

- Carers - a social need
- Traditional role of a Dai / TBA
- Carers' training a new role for therapists
- Carer-communications as a link
- Professionals-communications as a link
- Emergencies: What are the alert signs
- Types of carers we come across
- Type of caring needed
- Transfer of techniques and skills
- Responsibilities to be daily observed
- Patient's cooperation a must
- Hobby and recreation time for a patient
- Some qualities of carers
- Ways for caregivers
- Strategies to prevent or relieve stress
- Message for prospective carers
- Spastic hand Home Exercise Programme
- What we can do for carers?
- Equipment to care at home
- Patient compliance through carer-education
- Vital parameters
- Yoga a precursor of holistic programme





# Sports & recreation for the Disabled

One, who plays  
outplays disability and  
one who competes in  
sports, conquers  
the destiny.

## Learning Units:

- Playfulness is an instinct
- Indoor games
- Remedial sports
- General features of Sports and Recreation
- Activities carried by the disabled persons for sports and recreation
- High risk to performers
- Need for social security
- Real-life Spiderman with vertigo
- India's first disabled skydiver heads to Antarctica!
- Head injuries during sports
- Risks for the disabled sportspersons
- International Sports
- Events for the Disabled
- Disability categories
- Sports for the Disabled- Some experiences
- Basket-ball on wheelchair
- Sports for the Disabled School-children
- Cricket for the Blind
- One who plays, outplays disability
- Participation in cultural events needs a special skill of expression
- Exposing PT students to talents of the differently able and integration
- Role of Yoga
- "Play the game"





## About the Author:

### Dr. M.G. Mokashi,

BSc, DPT, FIAP, PhD (Bom),

DSc (Alt. Medicine)

Professor Emeritus,

Physiotherapy

In a long innings spread over nearly five decades as a physiotherapist and an academian par excellence, **Dr. Madhav Gajanan Mokashi** (known as MGM amongst his colleagues) has watched Indian Physiotherapy come of age from close quarters. As it is said, for some people age is just a number. At 78 years, he firmly believes that learning continuum has no end and everyone is a life-time learner.

Dr. Mokashi has worked as chief, physiotherapy and PG teacher at the **All India Institute of Physical Medicine & Rehabilitation, Mumbai** from 1961-1994 till voluntary retirement. He has extended his services to private sector as well. He has served as Principal, **LMCP, Mangalore**, Professor Emeritus-Director **J N medical College, Belgaum** in 2005 and is presently Adjunct Professor to Guide Ph.D. programme at **Dr. D Y Patil University Pune**.

A fellow of the IAP, Prof. Mokashi was elected as **IAP President** thrice i.e in 1968-69, 1978-80 and 1994-1996. He has represented IAP as **Delegate in WCPT** twice i.e. in 1974 in Montreal and 1995 in Washington and to **WHO Inter-country Workshop** on Orthopedic Technologies at Dakar, Senegal, 1989 and **Patron, IAP Annual Conference, Jaipur**, 2004.

He is on Editorial Board of **Indian Journal of Physiotherapy and Occupational Therapy** and **International Journal of Health Sciences and Research** and **Journal of KLE University**. He was the **Editor - Journal of Indian Association of Physiotherapists**, 1970-82, 1999, 2004. Since 2011 he is the Chief Mentor, **PHYSIOTIMES** - a bimonthly Magazine devoted to Physiotherapy, published from Ahmedabad. He has also written Chapters in Books published by **1. Punjabi University**, **2. National Diabetes Foundation, Belgaum** and **3. Father Muller College, Mangalore on Yoga in Neurological Disorders**.

Trained under pioneering foreign researchers, he has vast experience in research (120 papers) and contributed at international and national conferences. He was Principal Investigator on National projects of **Indian Council of Medical Research (ICMR)** and **Department of Science and Technology** and a **Pioneer in Yoga in Physiotherapy** and related research. He has also served as an expert to Government organisations, universities and NGOs and has been a Visiting Professor in **Biomedical engineering**.

**"Holistic Approach to Neurphysiotherapy - Experiences and evidences"** is his first book and is full of practical insights and pearls of wisdom from this stalwart of Indian Physiotherapy. Dr. Mokashi lives in Mumbai with his wife Dr. Umalini and can be contacted at **profmgmpt@yahoo.com**.

# HOLISTIC APPROACH TO NEURO PHYSIOTHERAPY

## Evidences and Experiences

This thought-provoking wealth of material is arriving at the correct and an appropriate time to provide valuable guidance not only to the whole physiotherapy community, but also to the specialists, and the research scientists working in the field of Neuro-sciences.

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Excellent book. Everyone will love it.

~ **Anjani Kumar, Consulting Pediatric Physiotherapist, Hyderabad**



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