

**THE TAMIL NADU
Dr. M.G.R. MEDICAL UNIVERSITY
CHENNAI - 600 032.**



**REGULATIONS & SYLLABUS FOR THE
M.P.T. POSTGRADUATE DEGREE IN
PHYSIOTHERAPY**

**THE TAMILNADU Dr. M.G.R. MEDICAL
UNIVERSITY, CHENNAI.**

**REGULATIONS FOR THE
M.P.T. POST - GRADUATE DEGREE IN
PHYSIOTHERAPY**

1. Eligibility

Candidates admitted into the Master in Physiotherapy course should have passed the B.P.T. Degree examination of this University or an examination of any other University accepted by the authority of this University as equivalent thereto.

Candidates who have passed B.P.T. Examination other than the Tamil Nadu Universities except Annamalai University shall obtain an eligibility Certificate from this University by remitting the prescribed fees along with the application form before seeking admission to any one of the affiliated institution.

2. Registration

A candidate admitted to the course in any of the affiliated Institutions of the Tamilnadu Dr. M.G.R. Medical University, Chennai shall register with the University by remitting the prescribed fees along with the application form for registration duly filled in and forwarded to the Controller of Examinations of this University through the Head of the affiliated Institutions, within the stipulated date.

3. Duration of the course

The period of certified study for the Master in Physiotherapy shall be a full time course and its duration shall extend over a period of two academic years for the award of the degree.

4. Commencement of the course

The Course will commence from the First of April, every year.

5. Cut off Dates for Admission to the Examination

a) The candidate admitted from 1st April to 30th June of the academic year will be registered to take up their 1 year examination in March of the next year.

b) The candidate admitted from 1st July to 31st December shall be registered for that academic year and shall take up their examinations in September of the following year.

c) The candidate admitted from 1st January to 31st March shall be registered for academic year of the selection, but they have to undergo the course along with the next year batch of students.

6. Commencement of Examinations

There shall be two University Examination sessions in an academic year, viz 15th March and 15th September. If the date of commencement of the examination falls on Saturdays, Sundays or declared Public Holidays, the examination shall begin on the next working day.

7. Working Days in an Academic Year

Each academic year shall consist of not less than 200 working days.

8. Attendance Requirements for Admission to Examination

No candidate shall be permitted to appear for the examination unless he/she puts in 80% attendance during his/her period of study and training in the affiliated institutions recognised by this University and produces the necessary certificate of study, attendance and progress from the Head of the Institution.

9. Condonation of Attendance

There shall be no condonation of attendance in Post Graduate Courses.

10. Revaluation of Answer Papers

There shall be no revaluation of answer papers of failed candidates in any Post-Graduate examinations.

11. Scheme of Examination

Time Duration : 3 Hrs.

I Year

For Internal Examinations only
(No University Examination)

Ist Semester : Basic Sciences Theory

Paper I Bio-Mechanics and kinesiology 100

II Semester :

Paper II Physiotherapy Modalities 100

Paper III Electromyography and Nerve Conduction Studies 100

II Year University Examinations**I Semester**

Paper I PT Education & Practice and Education technology 100

Paper II Bio-Statistics and Research Methods 100

Paper III	Internal	Theory	Prac.	Total
PT in Orthopaedics & Geriatrics	50	100	50	200

II Semester :

Paper I PT in Neurology	50	100	50	200
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Paper II PT in Cardio-Respiratory Diseases,	50	100	50	200
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II Semester :

Paper III Physiotherapy (Elective)	50	100	50	200
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(For each Practical Examination, there will be one long case and a short case which will include diagnosis, treatment plan and execution)

Dissertation Write	75
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Viva	25
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ELECTIVE

Advanced PT in Orthopaedics

Advanced PT in Neurology

Advanced PT in Cardio-Respiratory

Sports Physiotherapy

Paediatric Neurology

Hand Conditions

Community Physiotherapy

Obstetrics & Gynaecology

12. Marks Qualifying for a pass

50% in written 50% in written, internal assessment and oral when prescribed taken together 50% in practical examination will be required for pass.

13. Classification of Successful Candidates

A candidate who obtains not less than 60% of the aggregate marks in the whole examination shall be declared to have passed the examination in the First Class provided they pass all the examinations prescribed for the course within a period of two academic years from the year of admission to the course. Candidates who secure less than 60% of the aggregate marks in the whole examinations shall be declared to have passed the examination in the Second Class, provided they pass all the examinations prescribed for the course within a period of two academic years from the year of admission to the course. Candidates who obtain 75% of the marks in the aggregate shall be deemed to have passed the examination in First class with Distinction provided they pass all the examinations prescribed for the course at the first appearance.

Candidates who pass all the examinations prescribed for the course in the first appearance only are eligible for ranking :

14. Dissertation

Every Candidate presenting himself for the examination for first time shall submit three type written copies of a dissertation not exceeding 2500 words consisting of the result of his own study of important investigations carried out by him under the guidance of a recognised teacher together with a review of recent advances pertinent to that theme. The acceptance of the dissertation by the examiners shall be a condition precedent to the admission of the candidate for the written and practical examination.

A candidate who has submitted his dissertation once will not be required to submit a fresh dissertation if he re-appears for the examination in the same branch on a subsequent occasion, provided that the dissertation has been accepted by the examiners.

15. Number of Appearances

- a) A candidate registered for Two Years Post-Graduate Degree Course must qualify in the Examinations within four years of the date of his/her admission.
- b) However, a candidate may be permitted to undergo a further period of study and training of minimum six months duration in a recognised Post-Graduate Department in the Speciality in an Institution approved by this University.
- c) The candidate should submit a certificate of study and training from the Head of the Institution to controller of Examinations of this University along with his/her application for admission to every subsequent examinations.
- d) The candidates will not be permitted to appear for more than 7 attempts in the final examination and shall be discharged from the course if he/she fails to pass Examination in the said number of attempts.

16. Migration/Transfer of candidates

Request for transfer during the course of study will not be entertained under any circumstances.

17. Re-Admission after Break of Study

- a) Candidates having a break of study of 5 years and above from the date of admission and more than two spells of admission of break will not be considered for re-admission.
- b) The five years period of break of study shall be calculated from the date of first discontinuance of the course by the candidate.
- c) A candidate having a break of study shall be re-admitted after satisfactory fulfilment of the regulations of the University at the commencement of an academic year only and shall undergo

the full duration of the course with no exemption in the period of study and will be permitted to appear for the examinations as prescribed in the regulations.

- 18. The Course will be conducted in the Department of Physical Medicine headed by Doctor Qualified in Physical Medicine.

M.P.T. SYLLABUS (GENERAL)

PHYSIOTHERAPY :

ORTHOPAEDICS :

Upper limb fractures and Dislocations :

Describe in detail the fracture humerus, forearm bones, colle's fracture, hand bones and their medical and P.T. Management and their complications. Total shoulder replacement - their medical and P.T. management. Anterior dislocation of shoulder and reconstructive procedures - Putti platt, Bankart repair, Magnusan, Stalk, Bristow and its P.T. Management.

Sprains and Muscle Strains :

Rotator Cuff injuries, Bicipital tendinitis, supraspinatus tendinitis, Tennis Elbow, Trigger Finger, Periarthritis shoulder - P.T. Management.

Following conditions to be read and its P.T. Management, Thoracic-outlet Syndrome, shoulder hand syndrome, carpal tunnel syndrome.

Lower Limb fractures and Dislocations :

Describe in detail about the fracture neck of femur and their complication, fracture trochanter and their classifications, sub trochanteric fracture, shaft of femur, supracondylar fracture and intercondylar fracture of femur and its surgical and P.T. management.

Describe in detail the patellar fracture, patellectomy, intercondylar fracture of shaft of tibia, Pott's fracture calcaneal fracture, metatarsal fracture and its surgical and P.T. management.

The following operative procedure and its P.T. management should be studied. total hip replacement, bipolar endoprosthesis,

Hemirathroplasty, Richard's compression plate technique, Jewett Nail Fixation, Total knee replacement, ACL reconstruction, Menisectomy.

Following conditions and its P.T. Management :

Congenital dislocation of hip, slipped capital femoral epiphysis, Avascular necrosis of femora head, Coxa vara coxa valga, Anterior retroversion, posterior, & anterior dislocation of hip, Perthe's disease, chondromalasia patellae, Recurrent dislocation of patella, Forefoot valgus, forefoot varus, Tarsal tunnel syndrome and its surgical management.

Spinal fractures and Dislocations:

Clinical features following fracture of vertebrae and its Steffi plate fixation, Harrington's rod instrumentation, and conservative management. Describe the P.T. management following fracture spine.

Arthritis :

Affections of cervical spine and its P.T. management, Osteoarthritis - Articular neurology, Anatomy of articular cartilage, Tibial Osteotomy, Total knee replacement and its P.T. management. Rheumatoid arthritis : Its clinical features and its P.T. management.

Deformities of the spine :

Scoliosis type, measurement, braces, operative correction and its P.T. management.

Brachial plexus injuries :

Its surgical management, nerve graft and its P.T. management, Tendon transfers re-education, EMG, Biofeedback, splinting and P.T. management. Embryology and Anatomy of Musculoskeletal system.

Affection of the Vertebral column :

Spondylolysis - Pathology, surgical and P.T. Management.

IVDP - Pathology, Traction, Surgery, P.T. management back care, Lumber spondylosis - Pathology, X ray findings, P.T. management, Adolescent kyphosis, Diastematomyelia, Pott's Paraplegia - Taylor's brace, Steffi plating, decompression.

Amputation :

Principles of Amputation, IM, PPF, P.T. aim of treatment, prosthetic training, Gait deviations chek-outs.

Geriatrics :

Principles of Geriatric Rehabilitaion, Diabetes & Geriatric patient, Rheumatoid Arthritis in the elderly, Arthritis in the elderly, pathological fractures, osteoporosis, vertebral fractures, Geriatric amputee, lumbar canal stenosis, fractures in the elderly, strees fractures, paget's diseases, Aging of the musculo-Skeletal system, stroke management, Role of ,Physical therapist in Geriatric rehabilitation, prevention of cardio pulmonary deconditioning exercise & Geriatric pateint Physiological changes & age, Alzheimer's disease, dementia.

Exercise Physiology :

Muscle & its contraction - Architecture of skeletal muscles, sliding filament theory, types of muscle fibres, mechanical efficiency of muscle contraction, force-velocity, motor unit, muscle fatigue-blood supply, prolonged exercise.

Blood & Circulation

Cardiac cycle - pressure during cardiac cycle, Haemodynamics mechanical work and pressure, hydrostatic pressure, flow and resistance, Vanous - capillary structure and transport mechanisms, filtration & osmosis, vascularization of skeletal muscles, regulation of circulation during exercise, cardiac output & O₂ updates - stroke volume, blood pressure.

Respiration :

Lung compliance air way resistance, pulmonary ventilation at rest and during exercise, diffusion in lung tissues, gas pressure - ventilation & perfusion - Regulation of breathing - Exercise, High air pressures - Breath holding diving.

Physical Performance :

Aerobic processes intensity & duration of exercise, prolonged exercise, muscular stress involved in exercise.

Anaerobic Processes : Power & capacity of high energy breakdown.

Lactat : Production - distribution & disappearance, effect of metabolism on tissue & blood PH, Anaerobic threshold, maximal aerobic power, maximal anaerobic power.

Physical Fitness tests :

Test of maximal aerobic power - measurement of oxygen uptake, Treadmill tests, Bicycle ergometer test, step-test, maximal oxygen uptake in various sports.

Evaluation of anaerobic power, Exercise electrocardiogram.

Physical Training :

Training principles, continuous vs intermittent exersice training methods & biological long-term effects of training. Disuse, isometric strength training, dynamic strength training. Training of aerobic power, training of anaerobic power. Peripheral adaptation to aerobic training. Endurance training, Retraining, recovery after exercise, Mechanical efficiency technique, body composition, stretching, psychological aspects, muscular soreness, Ischaemic heart disease, contra-indications to physical training.

Applied Work Physiology :

Factors affecting sustained physical work, assessment of work load in relation to work capacity, Assessment of maximal aerobic power measurement of oxygen uptake in a typical work situation, Assessment of load exerted on specific muscles, Classification of work, Daily rates of energy expenditure, energy expenditure during specific activities like sleeping, sedentary, work, house work, light industry, manual labour.

Fatigue :

General Physical fatigue, local muscular fatigue, cardiac rhythm in humans, shift work, effect of menstruation.

Nutrition & Physical Performance :

Nutrition in general digestion, energy metabolism & factors governing the selection of fuel for muscular exercises, food for the athlete, Energy balance, regulation of food intake, ideal body weight obesity, slimming diets, optional supply of Nutrients.

Factors affecting performance :

High altitude -limiting factors, oxygen transport, adaptation of high altitude, high gas pressure, pressure effects, nitrogen, oxygen, carbondioxide metabolism in sports, tobacco smoking - culatory effects, respiratory effects, metabolic effects, smoking habits among athletes, alcohol & Exercise - Neuromuscular function, aerobic & anaerobic power, metabolic effects, caffeine, Doping and "THE WILL TO WIN".

Diabetes :

Pathophysiology of diabetes, onset, course, prognosis of Diabetes mellitus, classification of diabetes mellitus - NIDDM, IDDM, Glucose tolerance test, Dietary management of diabetes, glycaemic index, obesity & diabetes, exercise of diabetes, benefit of exercises, effect

of physical fitness on glucose tolerance, exercise program, mode of training, duration and frequency of exercise. Heart disease and diabetes, nervous system and diabetes, diabetic radiculopathy, diabetic polneuropathy, autonomic neuropathy, charcot-type arthropathy, diabetic amyotrophy.

Electrodiagnosis ECG :

Bipolar standard leads, unipolar, normal anatomy & physiology of the cardiovascular system, normal ECG, right & left axis deviations, ventricular hypertrophy, QRS complex abnormality, normal & abnormal P wave, bundle-branch block, ECG in myocardial infarction - localization of MI, Q wave abnormality, coronary insufficiency - ST segment abnormalities, T wave abnormality, stress testing ECG, classification of arrhythmias, sinus tachycardia, sinus-brady cardia, ectopic atrial rhythm. Atrial fibrillation, Atrial flutter, Atrial bradycardia, AV nodal rhythm, Extra systoles, ventricular rhythms, ventricular bradycardia, ventricular fibrillation, 1st degree AV block, 11nd degree AV block, 111rd degree AV block, Ventricular premature beats - clinical significance, prognosis.

NEUROLOGY

Development and growth of Central Nervous system, Anatomy of Cerebrum, Cerebellum and spinal cord, disorders of motor system, Reflexes, Development of language, Ageing of Nervous system, Physiology of CSF, circulation, absorption, Hydrocephalus - Treatment, Ventriculi peritoneal shunt, Ventriculi atrial shunt - PT management.

Intracranial Neoplasms : Gliomas, meningiomas, Neuromas, Angiomas, Craniopharyngiomas, Pituitary - Adenomas, surgical management & PT management.

Pyogenic infections of CNS : Bacterial meningitis, Brain abscess, Tuberculosis, Meningitis Neurosyphilis clinical features, pathophysiology, medical, surgical & PT management.

Viral Infections of CNS : Poliomyelitis Viral encephalitis, substance sclerosing encephalitis, AIDS : clinical features pathophysiology, medical surgical. & PT management.

Cerebro-vascular Diseases : Stroke syndrome, Ischaemic stroke infarction, thromboembolic stroke, Haemorrhagic stroke, transient ischaemic attacks, clinical features, pathophysiology, medical surgical. Carotid endarterectomy & PT management.

- CT Scan, MR, carotid angiography, SPECT Intracranial haemorrhage, Arterio-venous malformations of the brain. Clinical features. PT management.

Metabolic Disorders of Brain : Hypoxic encephalopathy, Hypoglycaemic encephalopathy, Hepatic encephalopathy clinical features, pathophysiology, Medical and PT management.

Degenerative Diseases of Nervous System : Parkinson's Disease, Clinical manifestations, pathophysiology, medical management, surgical treatment, PT management, motor neuron disease, Amyotrophic lateral sclerosis, progressive bulbar palsy, progressive

muscular atrophy, clinical picture, pathophysiology, medical management and PT management.

Cerebral Palsy : Causes, classification, types, reflex, activity at different levels, Assessment of developmental milestones from birth, Deformities.

Management : Lifting, carrying, positioning, orthopaedic surgeries in CP child. Equipments used for CP child.

Treatment Techniques : Neurodevelopmental approach (Bobath) Roods approach, Vojta techniques, Home programme.

Spina bifida : Incidence, Assessment of Neonate spina bifida occulta, type of lesion, deformity, bladder management - poliomyelitis Dermatomyelitis clinical features, enzymes level, muscle biopsy, medical management and PT management.

Polyneuropathy : Post-Infective polyradicular Neuropathy, Aetiology, Pathology, Signs & Symptoms, Prognosis, Medical management & PT management.

Diabetic - Polyneuropathy : Aetiology, Symptoms, signs, diagnosis, prognosis, PT Management.

Hereditary sensory motor neuropathy : Types, Basilar impression, Atlanto-axial fusion clinical presentation, surgical management & PT management.

Disorders of spinal cord : Compression of the spinal cord : Neoplasm of the vertebral column, IVDP, extradural or epidural abscess - signs & symptoms, myelography, CT scan, surgical treatment, PT management & rehabilitation.

Syringomyelia : Aetiology, pathology, clinical manifestation surgical treatment - decompression, Laminectomy, ventriculatrial shunt - PT management, spasticity management, orthoses, pressure-sore management, education.

Disorders of Muscle :

Myastheniagravis : Aetiology, Classification, signs & symptoms, prognosis, EMG picture, Thymectomy, medical treatment, PT management.

Eaton - Lambert syndrome

Myotonic disorders : Myotonia congenita, Dystrophia myotonic, Paramyotonia congenita - Clinical features, pathology medical management & PT management.

Progressive muscular dystrophy : Classification, Etiology.

Duchenne Muscular Dystrophy : Clinical presentation, pathology, enzymes level, muscle biopsy, EMG picture, orthotic management, PT management.

Becker muscular dystrophy : Clinical presentation, Deformities, PT management.

Limb-girdle muscular dystrophy : Clinical features, muscle biopsy, EMG, PT management.

Facio-Scapulohumeral-muscular dystrophy : Clinical presentation, incidence, management.

Multiple sclerosis : Pathology, Aetiology, Predisposing factors, motor, sensory symptoms, prognosis, diagnostic, TEN, MRI, CT scan, evoked potential tests, CSF examination, PT management in minimal disabled, moderate disabled & severely disabled.

Tuberculosis Meningitis : Clinical presentation, incidence, management.

Cardio-Respiratory Disorders :

Anatomy of the thorax, Respiratory tract, Broncho-pulmonary tree, lungs and bronchopulmonary segments. Mechanics of Breathing using

compliance, Neural control of the airway resistance, Gas exchange & transport, pulmonary Circulations. Vascular mechanics, matching of blood and gas, control of breathing.

Cardio-Respiratory assessment - Inspection, Palpation, Percussion & Auscultation, chest movement, Chest expansion, Breathing pattern.

Chest X-rays : Acute respiratory failure-Minute, Hypoxemia, Respirator failure, Respiratory abnormalities, management, Endotracheal Intubation, Tracheostomy, Mechanical ventilation, oxygen toxicity, Peep, Bronchial hygiene, Breathing exercises, physical physiotherapy, oxygen therapy.

Neonates with respiratory diseases : Anatomical & Physiological differences in neonates, pulmonary problems, secondary to immaturity, Neonatal distress, asphyxia management, Broncho pulmonary dysplasia, Nikity wilson syndrome, Bronchial stenosis, chest physical therapy, positioning manual percussion & vibration, Airway suctioning, Bronchial Drainage at home, suctioning at home.

Childrens with respiratory disfunction : Developing lung, developmental delay, COPD, Asthma, Cystic fibrosis, immunological deficiencies, Bone marrow transplantation, Paediatric AIDS, pertussis, functional & developmental assessment, Bronchial drainage, Percussion, Vibration and shaking, coughing techniques, Forced expiratory techniques, Autogenic Drainage techniques, expiratory pressure therapy, postural exercise, treatment precautions, Home care, mechanical percussor & vibrators, Role of physiotherapy in paediatric OP clinic, exercise testing, exercise prescription.

Respiratory muscles : Respiratory muscle mechanics. Respiratory muscle blood flow, determinants of respiratory muscle fatigue, Respiratory muscle function in disease, effect of training program on pulmonary function.

Mobilization : Effects of immobilization, methods of patient mobilization, standing, ambulating, equipment used for mobilization.

Adjuncts to chest physiotherapy : Humidification, installation, Nebulization, mechanical Nebulizer. Ultrasonic Nebulizer, IPPB - Aerosol delivery, complications.

Bronchodilators

Mucolytic / Aerosols

Blow bottles, incentive spirometry.

Peripheral vascular disorders :

Physiology, flow controls, Arterial pathological conditions, Nervous pathological conditions, lymphatic pathological conditions, Risk factors.

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| Evaluation | - Arterial evaluations, Doppler study.
Venous evaluation, Lymphatic evaluation |
| Treatment | - Arterial treatment,
- Winsor & Weyman Scale, Burger's exercises.
- Hyperbaric oxygen.
- Cold laser
- Venous treatment. Electrical stimulation
- Lymphatic treatment - Intermittent compression |

Chronic obstructive pulmonary disease :

Emphysema, chronic bronchitis, Bronchiectasis Asthma, Cystic fibrosis, pathophysiology of COPD, Exercise testing, airway clearance, O₂ therapy, pursed lip breathing - exercises.

Suctioning & coughing : Cough mechanism, methods of cough stimulation, tracheal suctioning complications, lavage, bagging.

Atherosclerosis : Coronary artery supply, Risk factors & development of coronary diseases. hemodynamics of coronary artery flow in normal and diseased states.

Cardiac rehabilitation : Following myocardial infarction. Exercise protocol Ambulation, training program, coronary artery bypass graft (CABG), Metabolic equivalents, coronary angioplasty, hazards, prognosis, percutaneous..... coronary angioplasty.

Congenital heart disease :

Tetralogy of fallot, Atrial septal defect, ventricular septal defect. Patent ductus arteriosus, total anomalous pulmonary venous connection, partial anomalous pulmonary venous connection, single atrium, atrial atresia, pulmonary atresia, tricuspid atresia, coarctation of aorta, double outlet right ventricle, transposition, of great vessels. transposition of heart - clinical features, x-ray finding ECG, cardiac catheterization, surgical management, prosthetic cardiac valves, Balloon mitral valvotomy, valve replacement, open, valvotomy, PT management.

Diseases of the myocardium : Hypertrophic cardiomyopathy, contractile cardiomyopathy - clinical features, pathology, ECG, endomyocardial biopsy, cardiac transplantation, PT management.

Tumours of the heart : Primary Cardiac tumours, Metastatic cardiac tumours, pathology - clinical presentation surgical treatment.

Trauma to the chest : Pneumothorax, Haemothorax, fractured ribs, lung contusion, injury to great vessels, clinical presentation, management, PT management.

Describe PT management of lung segmental resection, lobectomy, pneumonectomy, open lung biopsy, bilobectomy & Tracheostomy.

Describe medical & PT management of the following :

Bronchiectasis, lung abscess, Bronchopneumonia, Destroyed lung, carcinoma of the lung, pulmonary embolism, pneumoconiosis, Asbestosis & Interstitial lung disease, Pre-operative & Post-operative management.

Describe medical management: Of empyema thoraces, Describe underwater seal intercostal drainage, Rib resection Decortication, window operation and omentoplexy, PT management.

Cardio-pulmonary resuscitation : Cardiac arrest, Ventricular fibrillation, resuscitation, closed & open cardiac management, artificial respiration, emergency medications.

Investigations : Pulmonary function tests, ECG, echocardiography, cardiac catheterisation, stress testing, coronary angiography lung scintigraphy, Acid base gases, lipid profile, chest x-ray exercise tolerance test, CT scan, MRI.

BIOMECHANICS AND KINESIOLOGY.

Physical Properties of bone :

Elasticity of bone, stress resistance of bone compression, shearing and bending stress, torsion. Application of the theory of Beam and column, effect of muscular tension on Gravitational stress in bone.

Functional Adaptation of Bone under pathological Condition:

Static conditions : Moritz syndrome, Rachitic coxa vara, TIBIA Vara
Traumatic conditions, Congenital deformities.

Physical properties of normal cartilage :

Stress and structure, elasticity, deformation and pressure, pathokinetics of cartilage.

Physical properties of muscles :

Elasticity and contractility of muscle. Electro physiology of muscle, contraction length. Physical properties of Ligaments and tendons.

Mechanics of Joint :

General mechanical principles, shape of the articular surfaces, joint contact, type of joint movement degrees of freedom of motion, kinetic chain.

Mechanics of Muscle action :

Stabilizing and rotatory components, leverage and equilibrium, morphological adaptation of muscle, co-ordination of skeletal muscle action, biarticular muscles.

Body balance and body equilibrium :

Translatory effect of the force of gravity rotatory effect of gravity, centre of gravity of human body, location of centre of gravity.

Shoulder Complex :

Describe the following :

Physiology of shoulder, Codman's paradox, Instantaneous centres of rotation, capsule and ligaments of shoulder, sternoclavicular articulation - Articular surfaces movements, Acromioclavicular articulation - Anatomy - range of motion, scapulothoracic articulation - movement of the shoulder girdle, glenohumeral articulation - Anatomy, capsule and ligaments, circular polar movement of the shoulder joint. Dynamics of shoulder complex - Translatory movement of the shoulder blade, rotatory movement of the shoulder blade, physiology of adduction, capsulohumeral rotation.

Pathomechanics of paralysis of the shoulder :

Paralysis of the trapezius, paralysis of the serratus anterior, paralysis of Rhomboids, paralysis of deltoid, paralysis of supraspinatus, paralysis of the subscapularis, paralysis of pectoralis major paralysis of latissimus dorsi.

Kinetic point of view - operation for paralysis of trapezius. Paralysis of serratus anterior, deltoid.

Elbow : Ligaments, coaptation of the articular surfaces, range of movements, pronation - supination, functional anatomy of inferior radio-ulnar joint, dynamics of superior, radio-ulnar joint, position of function and compensatory movements.

Patho mechanics of paralytic elbow :

Paralysis of extensors of elbow, paralysis of flexors, methods of transposition of forearm muscles, substitution by the triceps.

Wrist and hand :

Movements of the wrist, range of movements of the wrist, articular-surface of radiocarpal and midcarpal joints, ligaments of

radio - carpal joint. Dynamics of the carpus, lunate pillar, scaphoid-lunate couple. Functional pattern of wrist motion, paralysis of wrist extensors, paralysis of wrist flexors.

Topography of hand, Architecture of the hand, metacarpophalangeal joints, ligaments range of movements, interphalangeal joints - ligaments, tunnels, synovial sheaths of the flexor tendons, Geometry of the opposition of the thumb.

Trapezoid - metacarpal joint - coaptation of articular surfaces, metacarpophalangeal joint of the thumb.

Modes of prehension - Terminal opposition, subterminal opposition, subterminal - lateral opposition, tridigital grips, teradigital grips, pentadigital grips, palmar grips, dynamic grips.

Pathokinetics of paralytic disabilities :

Paralysis of finger extensors and flexors, paralysis of interossei and lumbricals, tendon transplantation, Flexors and extensors. Arthrodesis of the wrist combined with tendon transplantation - kinetic analysis. Analysis of Arun movements under open kinetic chain conditions - BALK Throwing, Discus throwing, shot putting, movement of the upper extremity in a closed kinetic chain weight lifting, boxing.

Hip : Movements of the hip and their ranges, movements of the circumduction of the hip, capsule and ligaments of the hip, muscular and bony factors affecting stability of the hip. Inversion of muscle action. Architecture of femur, analysis of the static forces, operative upon the femur, static pressure and shear effects produced by muscle action, muscle dynamics.

Patho mechanics : of coxa valga - skeletal factors, mechanical muscle situation of coxa valga, pathomechanics of the dysplasia of hip joint, patho mechanics of fixed pelvic obliquity. Dynamics of pelvic obliquities in coxa vara. Paralysis of hip abductors, adductors, extensors and flexors, internal and external rotators. Mechanics of reconstructive procedure of paralysed hip joint - paralytic dyslocation,

shelving operation, Legg's operation, substitution of the abductors by external oblique, substitution of gluteus maximus by sacrospinalis.

Knee : Axes of the knee joint, movements of the knees and its range of motion, ligaments of the knee, lesions of the menisci, transverse stability of the knee-anterior, posterior stability of the knee, mechanical role of cruciate ligaments, rotational stability of the knee, stress analysis of the bones, mechanics of menisci, muscle dynamics of the knee joint.

Pathomechanics of static deformities :

Genu valgum - static factor, dynamic factor, static Genu varum, static Genu recurvatum, mechanics of tibial torsion.

Pathomechanics of the paralytic knee : Extensor paralysis. Flexor paralysis of the knee, methods of reconstruction of Genu recurvatum. Fasciodesis, Tenodesis, Osteoplastic - Arthrodesis, Reconstruction of the paralytic Genu valgum, reconstruction of flexor contracture.

Ankle and Foot :

Joint complex of the foot, articular surfaces of the ankle, ligaments of ankle, anteroposterior stability of the ankle and factors limiting flexion and extension. Transverse stability of ankle tibiofibular joints, construction of the Arches, Axes of the joint of the foot, internal architecture of the foot, ligamentous reinforcements of the articularis.

Describe the subtalar joint, articular surfaces, ligaments of subtalar joints, transverse tarsal joint, movements of subtalar joints, muscle deformities of the foot, cuneonavicular, tarsometatarsal joints, fibrous tunnels of the dorsal and plantar aspects of the foot, general architecture of the plantar vault three arches of the plantar vault, medial arch, lateral arch, anterior arch, distribution of stresses and static distribution of the plantar vault, dynamic changes of the arches of the foot during working dynamic changes related to the medial and lateral rotation of the leg on the foot.

Pathomechanics or the static deformities of the foot and ankle :

Development factors, pathological equilibrium - pronated foot, instability of the subtalar joint, pathomechanics of the subtalar structures PES cavus PES planus.

Pathomechanics of the paralytic foot and ankle :

Calipers, callaneus, calipers equinus, subtalar joint, midtarsal joint, arthrodesis of paralytic joints for the establishment of equilibrium, stabilization of the ankle, single arthrodesis, double joint arthrodesis and three joint arthrodesis.

Ergonomics :

Work capacity analysis, role of physiotherapy in Industrial set up, job, site paralysis, pre-employment screening, workers functional capacity assessment, work hardening programme, Industrial therapy CCINIC, postural examination, job task analysis, educational programme, for prevention of injury, adult education, documentation.

P.T. EDUCATION & PRACTICE

P.T. Department management - policies and procedure - recruitment, interview, orientation probationary period, salary hours of work, leave facilities, retirement, referred policy, equipment maintenance records, statistics functioning, department planning design and construction, planning and innovation, growth and expansion type and size of hospital, services and activities, space requirements, number of functional area elements, occupancy time gymnasium, patient waiting areas, storage facilities, lighting floor surfaces.

Physical therapy and Law :

Medicological aspects of physical therapy, liability, negligence, malpractice, licensure, workman's compensation.

P.T. Ethics :

Morals and ethics, ethical analysis of moral problems, ethical issue in physical therapy, rules and regulations of Indian Association of Physiotherapists, ethical rules, aims and objectives of Indian Association of Physiotherapists.

Trauma :

Traumatic shock, injuries to the chest wall, bronchis, lung, diaphragm, management of soft tissue injuries, management of severe head injuries, unconscious patient, rehabilitation of the trauma, team approach

Plastic Surgery :

Basic techniques of plastic surgery, skin grafts, skin laps, Myocutaneous flaps, cranio facial surgery - Hypertrophic scars and keloid formation, replantation, microsurgery, microsurgical repair of peripheral nerves, pressure sores, Lymphoedema, reconstruction of breast after mastectomy.

PHYSIOTHERAPY MODALITIES

Short Wave Diathermy :

Physics , biophysical and biochemical effects of SWD, therapeutic effects of SWD, indications, dangers, precautions, application of inductothermy.

Pulsed Shortwave Diathermy - Biological effects, Indications, Contraindications, Techniques of Application, Advantages, Disadvantages.

Microwave Diathermy :

Physics of microwave diathermy, Biophysical, Biochemical Therapeutic effects of MWD, Dosage, Indications, contraindications, techniques of MWD, Dangers, Precautions, Method of application, advantages, disadvantages, pulsed microwave diathermy.

Ultrasonic Therapy :

Medical frequencies of Ultrasound, Production of Ultrasound, Physical phenomena of Ultrasound, Pulsed Ultrasound, Physiological effects of Ultrasonic energy, Indications, Contraindications, Dangers Coupling Media, Dosage, Methods of Application, technique of Application incontact Method, Subacquatic method uses.

Ultraviolet Therapy :

Ultraviolet for medical use, Physiological effects, Therapeutic effects, Dosage - calculation of dosage, progression of dosage, Indications, PUVA regime, Contraindications, Applications, Using Air-cooled lamps, Kromayer lamp, dangers.

Infrared Radiation :

Physics, Apparatus for Infrared Heating , Physiological Effects, Indications, Contraindications, Technique of Application, Advantages, Disadvantages.

Iontophoresis :

Direct current, strength of solution, common drugs in usage today, Apparatus used, Indications, Contraindications, Dosage methods - Incontact, subaquatic, Iontophoresis techniques - Treatment of Hyperhydrosis, calcific tendinitis, allergic vasomotor rhinitis - side effects, contraindications, technique.

Faradic Stimulation :

Faradic type currents, Physiological effects, Indications, Contraindications, Faradic stimulation in weak pelvic floor muscles, Bell's palsy, Reduction of limb oedema, disuse atrophy, reduction of muscles of foot.

Dynamic Currents :

Physiological effects, Indications, Contraindications, Methods of Application, Dosage.

Interferential therapy :

Interferential currents, Principles of Interferential Therapy, Physiological effects, Uses of IFT.

Transcutaneous Electrical Nerve Stimulations :

Principles, 'pain gate' theory physiological effects, Therapeutic effects, Obstetrical Tens, Cancer pain and Tens, Electrode placement, postoperative pain relief by TENS, TENS for non-healing fracture.

Laser Therapy :

Cold lased production, Physical Characteristics, Physiological Effects, Dosage, pain Control, Indications, Contraindications, Trigger Points.

Cryotherapy :

Cold Packs , Ice bags, Ice Massage, Ice Towels, compressive cryotherapy, vapocoolant sprays - Therapeutic effects, uses in sports medicine, spasticity, management, therapeutic uses.

Paraffin Wax Bath :

Methods of Application - Immersion, Brushing, Equipment required, Physiological and Therapeutic effects, Uses and Precautions.

Fluidotherapy :

Equipment required, Methods of Application, Physiological Effects, Therapeutic Uses, Benefits of the Therapy.

Hydrotherapy :

Physical laws of water, Physiological Effects of Water, Equipment, environments, Hygiene, Treatment time and temperatures, safety considerations, advantages and disadvantages.

Hot Packs :

Hydrocollators, Packs, Temperature maintenance, Physiological effects, methods of application, uses, advantages and disadvantages.

Contrast Bath :

Equipment used, method of application, Indications, Contraindications, Physiological Effects, Therapeutic uses.

Traction :

Types of Spinal traction - continuous, Intermittent, manual, Autotraction, Gravity Lumbar traction, Indications for Spinal Traction, Contraindications, Effects of traction, mechanical Lumbar traction technique, cervical traction technique.

Mechanical External Compression :

Causes of oedema, Pathophysiology of oedema, types of oedema, methods of external compression - Taping, Intermittent compression, elastic support bandaging, gradient support, massage, exercise - physiological Effects, Therapeutic Uses, Patient Education.

ELECTROMYOGRAPHY AND NERVE CONDUCTION STUDIES

Normal motor unit action Potentials, Abnormal motor Unit Instrumentation - Apparatus technique, Surface electrodes - Needle electrodes - Types, Intracellular electrodes amplifier stimulator cathode - Ray Oscilloscope digital processing - Electrical safety.

EMG Examination muscle at rest, Insertional activity, Minimum effort, Maximum effort.

Motor Units Potential In disease :

Motor and neuron disease, Hereditary motor neuron diseases poliomyelitis, muscular dystrophies inflammatory myopathies, Congenital myopathies Myotonias, Metabolic myopathies.

Quantative methods in EMG

Action potential measurements motor unit population

Motor and Sensory Conduction

Physiology of nerve conduction, General factors affecting nerve conduction, Nerve stimulation - Latency, Amplitude nerve conduction velocity. special conduction techniques - H wave and F Wave in proximal conduction studies, Standard motor conduction techniques - long thoracic nerve, radial nerve, ulnar nerve median nerve, femoral nerve sciatic nerve peroneal nerve, tibial nerve, Standard sensory conduction techniques, radial nerve Ulnar nerve, median nerve, lateral cutaneous nerve of thigh saphenous nerve, Peroneal nerve Tibial nerve, Sural nerve.

Entrapment Syndromes

Carpal tunnel syndrome EMG studies in Myasthenia gravis, Decremental studies Lambert - Eaton myasthenia syndrome Electrodiagnosis in Radiculopathy.

Peripheral Neuropathies

Nerve conduction changes in peripheral neuropathy EMG changes in peripheral neuropathies, Hereditary neuropathies - Toxic neuropathies, Idiopathies, neuropathies, (Guillain - Barre Syndrome) Chronic polyneuropathy electrical study of Axonreflexes, Blink reflex, Jaw Jerks, Tonic Vibration Reflex.

Nerve Trauma and Compression Syndromes

Nature, and effects of nerve injury course and prognosis Brachial plexus lesions Entrapment neuropathies, Median nerve (Carpal Tunnel Syndrome) Ulnar nerve (Cubital Tunnel Syndrome) radial nerve Meralgia Parasthetica, Tarsal Tunnel Syndrome, facial nerve - Electrical stimulation, Blink reflex, Somatosensory evoked potentials, General principles, Electrode placement, Pollarity methodology for upper extremities studies methodology for lower extremity studies use of SEP's in peripheral nerve problems, Use of SEP's in Brachial Plexopathy, use of SEP's in Thoracic outlet Syndrome use in intraoperative monitoring, use of SEP's for determining prognosis & Diagnosis.

EDUCATION TECHNOLOGY

First Year

Theory - 200 hrs.

Pract. - 100 hrs.

Overall objectives : The graduate PT student after completing the course assumes teaching and leadership positions in PT Educational programmes.

Behaviour Objectives - The student is able to -

- 1) Describe the development of educational aims from early civilization to modern times.
- 2) Compare and contrast the beliefs of traditional and modern philosophies of education.
- 3) Define the major educational theories and illustrate their application in curriculum development and instruction.
- 4) Describe the history of education in India from pre-British to the present giving the current issued and trends.
- 5) Describe and explain concepts and principles of curriculum development, instruction, learning and evaluation.
- 6) Describe and explain principles of counselling and guidance and the responsibility of the school for providing suitable environment of learning.
- 7) Locate and use library and other resources in planing.

Education

Unit - I

Aims, Philosophy and trends and issues in education including :

- Educational aims
- Agencies of education
- Formal and informal education.
- Major philosophies of education (naturalism, idealism, pragmatism, realism) including Gandhi and Tagore.
- Modern and conterporary philosophies of education (excistentialism,progressivism,reconstructionism, perennialism)

Philosophies of education.in India - past, present and future.

Role of educational philosophy

Current issues and trends in education

Unit - II

Concepts of teaching and learning.

- Theories of teaching
- Relationship between teaching and learning
- Psychology of education.
- Dynamics of behaviour, motivational process, of learning perception, individual differences, intelligence personality.

Unit - III

Curriculum :

- Curriculum committee
- Development of a curriculum for P.T.

- Types of curriculum.
- Formation of philosophy, objectives, course objectives.
- Placing, course placement, time allotment.
- Selection and organisation of learning experience
- Master plans of courses.
- Master rotational plan – individual rotational plan
- Correlation of theory and practise.
- Hospital and community areas for clinical instruction
- Clinical assignments
- Current trends and curriculum planning.

Unit – IV

Principles and methods of teaching :

- Strategies of teaching.
- Planning of teaching
- Organisationn, writing lesson plans
- A.U. aids
- Teaching methods - socialised teaching methods.

Unit – V

Measurement and Evaluation :

- Nature of Measurement of education, meaning, process, personnel, standardised, non standardised tests.
- Steps of constructing a test, measurement of cognitive domain, assessment techniques of affective , pyschomotor domains, administering scanning and reporting.

- Standardised tools, important tests of intelligence, aptitude, instrument, personality, achivement and sestatus scale.
- Programme evaluation.
- Cumulative evaluation.

Unit – VI

Guidance and counselling :

- Philosophy, principles and concepts, guidance and counselling services of students and faculty.

Unit - VII :

- Faculty development and development of personnel for P.T. services.

Practicals :

- 1) Prepare a philosophy, overall and behavioural objectives for a basic P.T. Programme.
- 2) Design a curriculum for a basic PT programme.
- 3) Plan a unit of instruction for a course in a selected speciality of P.T.
- 4) Prepare a lesson plan and conduct classes.
- 5) Construct a written objective type test for the lessons you have taken.
- 6) Prepare a plan for evaluating the students of PT.
- 7) Internal assessment tests in all topics metnods of teaching.

Lectures

Seminars - Discussion

Methods of Evaluation :

- Project evaluation
- Classroom teaching
- Written test.

BIostatISTICS AND RESEARCH METHODS :

- First Year - Theory – 100 hours
- Pract. – 150 hours.

Overall Objectives :

The students is able to apply the basic concepts of statistics and principles of scientific enquiry in planning and evaluating the results of PT practise and participate in and or conduct descriptive, exploratory and survey studies in PT and evaluate and apply the results of research studies in health, and related fields of practise (the Dissertation be submitted 4 months before final examination).

Behavioural objectives :

The Student is able to :

- 1) Design a study identifying a population and methods of selection of the sample required.
- 2) Present data in appropriate tables, graphs and diagrams.
- 3) Calculate averages, valuation, linear correlation and regression.
- 4) Calculate confidence intervals and simple tests of significance . Using normal x and x^2 distribution.
- 5) Compute commonly used vital and health statistics and estimate population using Arithmetic progression methods.

- 6) Construct instruments for eliciting data through questioning, observation and measurment methods and techniques.
- 7) Quantify, analyse, describe and interpret data.
- 8) Critique PT Studies.
- 9) Select and write a clear statement of a researchable problem.
- 10) Search and analyse the literature for facts and theory relating to the problem.
- 11) Identify and state relevant assumptions – Hypothesis.
- 12) Design a study identifying a population and methods of selection of the sample seqd.
- 13) Make recommendations basic on the finding for application to PT and further research.
- 14) Prepare and write a scientific report of the study.

Content :**Unit I – Introduction :**

- Uses of statistical methods in PT
- Measurement, Measurement scales, variables and their measurement.
- Symbolising data and operations.

Unit – II

- Statistical data
- Tabulation
- Calculation of central tendency and dispersion

- Linear regression and correlation
- Presentation of data in diagramatic and graphic form

Unit - III

- Probability and sampling
- probability as a mathematical system
 - population and samples
 - sampling distribution
 - sampling methods
 - surveys in research

Unit - IV :

Vital and health statistics -

- Point and interval estimation for proportion mean
- hypothesis testing, simple test of significance
- inferential technique : normal

Unit - V :

Vital and health statistics - use of vital and health statistics in the practice of PT.

- Sources and methods of collection and recording.
- Interpretation of commonly used vital and health statistics and estimate population using Arithmetic progression method.

Unit - VI

Research process and methods :

- Overview service and scientific methods
- Steps on the research process

- Selection and statement of problem
- Formulation of hypothesis
- Basic principles and methods of research designs.

Unit - VII :

- Data collection methods, scales and techniques of psychological measures.
- reliability, validity and criteria for assessing measuring the tools.
- analysis and interpretation of research data.
- Role of computers
- Pilot study.

Unit - VIII :

Introduction

- History of PT research before 1900
- 1900 - 1950
- 1950 - present.

Unit - IX :

- Critique of PT studies
- Historical
- Instruments and tools
- PT education
- Administration
- PT Practice.

Unit – X :

Practical application if Research process -

- Selection and statement of problem and hypothesis
- Review of literature
- Selection of research approach
- Selection of data gathering and developing the data gathering instruments.
- Developing the data analysis plan.
- Selection of sample
- Identifying the assumptions and limitations of the study.
- Designing the data gathering plan
- Pilot study.

Unit – XI :

- Conducting the study
- Implementing the data gathering plan
- Implementing the data analysis plan

Unit – XII

- Preparing the research report
- Mechanics / writing the report
- Documentation
- the details of the study
- Arrangement of report

Practs – Presentation of study for discussion

Method of teaching – lecture and discussion

- Seminars and practices.

ELECTIVE**ADVANCED PHYSICAL THERAPY IN ORTHOPAEDICS**

Embryology and anatomy of musculoskeletal system, Evaluation of muscles and joints, Assessment of the arches of foot, Podiometry, Apparent neurobiology of joint, Measurement of subtalar and ankle joint, Arthrokinematics and osteokinematics of musculoskeletal system, Architecture of the femur, Gait evaluation, weight transfer through trunk weight transfer in lordosis, limb length discrepancy, Above-knee, Below knee amputee weight transfer, gait deviations and training Intervertebral discs, Muscles of trunk and their dysfunction, Arthroplasty of hip, Management of sports injuries, Evaluation of human foot, thumb evaluation and physiotherapy management of lumbosacral disorders. Management of polioalytic hand, Rheumatoid hand, manual therapy, mobilisation skills, Ageing process observed in joints, Posture, Brachial plexus injury, Role of physiotherapist in scoliosis unit.

PHYSICAL THERAPY IN NEUROLOGICAL DISORDERS

Therapeutic approaches based motor learning, Inhibition in central nervous system, Movement disorders, neural control of bladder and its dysfunction, Long loop mechanism in human CNS and their disorders Perceptual disorders in locomotion, Limbic System, Assessment and management of cerebral palsy child, Development of locomotion, Theories of learning, Neural control of locomotion, Disorders of Basal ganglia, Management of Neuropathies, Assessment of balance and incoordination, Cerebellar dysfunctions, Sensory system on motor performance, Alpha motor neuron, Role of physiotherapist in head injury unit, muscle spindle, Assessment of pain, Pathophysiology of pain, and its management by PT modalities, Feed back mechanisms, and its application in treatment, Ballistic movements, Ramp movements, Myelination of pyramidal tracts, development of neuromuscular junction, Pathophysiology of deep

tendonjoints, Clonus, Plantar response, abdominal reflex, unconscious patient, Autonomical nervous system, Neurotransmitters, Evaluation of postural reflexes, Development of motor system in man, Voluntary control assessment, and spasticity assessment.

Brainstem Auditory Evoked Potentials

Equipment required Methodology normal values uses in peripheral hearing disorders, clinical interpretation uses in acoustic neurouas multiple sclerosis, Use of Baeps in Paediatrics.

Visual Evoked Potentials

Equipments, Methodology, Normal results and interpretation clinical uses - use in optic neuritis and multiple sclerosis use in paediatrics, use of Vep's in surgery.

Disability and Compensation

Concepts of impairment, Disability and handicap, Methods of disability evaluation - Governments of India's notification, Government of Tamil Nadu, Mc Bride's method, Phulhems profile, Locomotor handicapped - Evaluation of motor impairment - Spasticity, Incoordination sensory impairment Evaluation, Evaluation of respiratory function - Ability index - puises profile, Kats index of ADL, Barthel Index, Modified Barthel Index, Kenny self care evaluation, functional classification of patients with diseases of the heart.

Physical Therapy in Cardiological and Respiratory Diseases

Breathing mechanism in normal and diseased states, Gas analysis and Blood chemistry, principles of cardiac rehabilitation, risk factors in Ischemic heart diseases, Force expiratory techniques, spirometry, Inspiratory holds, Autogenic drainage, Biomechanics of respiration, physiological functions of microcirculations, Vo2max, myocardial contractability, coronary angioplasty rehabilitation, Exercise tolerance test, Humidifiers, Nebulizers, Oxygen - therapy,

Role of physiotherapy in physical conditioning, Cardio -vascular and respiratory factors limiting physical exercises, Breathing exercises and respiratory dynamics, cardio-respiratory monitoring in physiotherapy, stress testing and its relevance to exercise prescription, restrictive respiratory disorders lung transplantaion, Heart transplantation oxygenation and energy requirement during exercise, cardio resuscitation, Pulmonary functions test, electro cardiography, X-ray, Acid-Base gases analysis, enzyme level Brochogram, CT scan, MRI, Ventillatio / Perfusin scan.

SPORTS PHYSIOTHERAPY

Prevention of Athletic Injuries

Athletic coordinating program - Skeletal muscle - Type I and Type II fibers, General conditioning principles - Strength, Power, Muscular endurance, flexibility, anaerobic metabolism.

Warm-Up period :

Warm-up schedule, stretching partner stretching using the proprioceptive neuromuscular facilitation technique.

Protective and supportive equipment :

Protective equipments, supportive devices, motion limiting devices.

Treatment of Athletic Injuries :

Tapping and wrapping techniques.

Emergency care and Athletic First Aid :

Cardiopulmonary emergencies, Heimlich maneuver Shock Injuries - Internal Injuries, Head and Neck Injuries, fractures, dislocations.

First Aid :

ICE or cold application, compression, Elevation, Gait instruction, Stretcher uses.

Therapeutic Modalities and Procedures :

General principles of therapeutic modalities, Hydrotherapy, Shortwave Diathermy, Microwave Diathermy, Ultrasound, Iontophoresis, Phonophoresis, Electrical muscle stimulation transcutaneous Electrical Nerve stimulation (TENS), Cryotherapy, Cold spray, Contrast bath, Paraffin wax bath, Ultraviolet, massage-

indications, contraindications, therapeutic and physiologic effects, treatment techniques - manipulative therapy - contraindications.

Injury Rehabilitation :

Goals of rehabilitation, types of exercises - Isometric exercise, Isotonic exercise, Isometric exercise, special forms of exercise - manual resistance, proprioceptive neuromuscular facilitation, surgical tubing, circuit training, sport - specific skills.

Inflammatory and Healing process, microtrauma, stress reactions and stress, fractures.

Epiphyseal Injuries :

Prevention, classification, treatment, complications and prognosis of epiphyseal injuries, Osgood Schlatter disease, traction epiphysitis, tendinitis at the insertion of the patella., tendon, complete avulsion of the epiphysis of the tibial tubercle shoulder - contributing risk factors - intrinsic factors, extrinsic factors.

Shoulder Girdle Injuries :

Injuries to the sternoclavicular joint - sprains dislocations, acromioclavicular joint sprains, anterior dislocation of glenohumeral joint, recurrent anterior dislocation of the shoulder, posterior dislocation of shoulder - mechanism of injury, symptoms and signs, reduction, surgical treatment, thoracic outlet syndrome - pathomechanics, treatment.

Shoulder Rehabilitation :

Following Puttiplatt or Bankart repair for an anterior shoulder dislocation, exercise for acromioclavicular separation, exercises for over use and impingements syndrome.

Elbow joint Injuries :

Olecranon bursitis - prevention treatment, elbow problems

resulting from throwing - medial lesions, lateral lesions posterior lesions, treatment.

Elbow injuries from Tennis :

Incidence, pathology, mechanism of injury, treatment, muscle strengthening program for Tennis Elbow, Javelin throwing.

Wrist and hand Injuries :

Colle's fracture, scaphoid fracture - mechanism of injury, symptoms and signs, treatment.

Gamekeeper's Thumb, Boutonniere deformity, pseudo-boutonniere deformity - mechanism of injury, symptoms and signs, treatment, splinting, fractures of the metacarpals symptoms and signs, treatment, Bennett's fracture - immediate and delayed treatment, acute, mallet finger, tenosynovitis of the thumb, symptoms and signs, treatment, Bowler's thumb, handler palsy.

Thigh Injuries :

Contusion to the quadriceps - symptoms and signs, treatment, complications, prognosis, strain of the quadriceps musculature, mechanism of injury, symptoms and signs, treatment, acute strain of the hamstring group - signs and symptoms, treatment, complete rupture of the patellar tendon - symptoms and signs and treatment.

Knee Injuries :

Prevention of the injuries, mechanisms of knee ligament injuries, first - degree sprain, second degree sprain, third - degree sprain, symptoms, and signs and treatment. Anterior and posterior cruciate tears, anteriomedial, anterolateral instability symptoms pathology, treatment, rehabilitations exercise meniscal lesions - types of tears, etiology, symptoms, signs, treatment.

Injuries of the patella :

Patella fracture - treatment, acute dislocation - symptoms, signs, treatment recurrent dislocation, subluxation and spontaneous reduction of a dislocated patella Osteochondritis dissecans - types, signs treatment, Jumper's knee - etiology, symptoms, x-rays, treatment, rehabilitation of the knee and patellofemoral joint - stages of rehabilitation stage I, II, III, IV, V, post -menisectomy rehabilitation program.

Injuries to the lower leg, ankle and foot-injuries :

Rupture of the gastrocnemius (Tennis leg), total rupture of the achilles tendon, partial rupture of the achilles tendon - mechanism of injury, symptoms and signs, treatment, rehabilitation.

Injuries to the Ankle :

Prevention of the ankle injuries - stretching exercises, Shoes, taping mechanism of ankle sprains, inversion sprains, eversion sprains dorsiflexion sprains, evaluation of injured ankle - history, observations, palpation, ligament stability test, x-rays arthrography ankle and foot rehabilitation - Stage I, II, III, IV, V, tarsal tunnel syndrome, stress fracture of the metatarsal, Morton's neuromas, sesamoiditis, corns and calluses, blisters, ingrown toe nails.

Injuries to the Running Athletic :

Biomechanics of normal running gait causes of overuse injuries, prevention of overuse injuries, biomechanical examination of the running athlete's -alignment, Common running induced injuries to the lower back -examination, treatment, common running induced injuries to the hip - iliotibial tract pain, trochanteric bursitis, stress fracture of femoral neck, slipped capital femoral epiphysis, vague hip pain.

Common Running related injuries to the knee :

Medial patellar pains, pes anserine bursitis, patellar tendonitis, retropatellar pain, lateral patellar pain, lateral knee pain, biceps femoral tendinitis.

Common running related injuries to the lower leg :

Tibial stress reaction, stress fracture, medial tibial stress syndrome, compartment syndrome - anterior posterior lateral, fibular stress reaction and stress fracture - etiology, symptoms and signs, treatment, management, retrocalcaneal bursitis - symptoms and signs, treatment, medial arch pain, plantar fasciitis etiology, symptoms and signs, treatment.

Swimming Injuries :

"Swimmer's Shoulder" anterior subluxation of the Glenohumeral joint-symptoms and signs, treatment, prevention of injury; breaststroker's - mechanism of injury, symptoms and signs, treatment, prevention.

Nutrition and Athlete :

Well - balanced diet, pre-event nutrition, increasing weight, decreasing weight in wrestlers, carbohydrate - loading diet, sugar before and after competition.

PAEDIATRIC NEUROLOGY

Introduction, cerebral palsy and its disorders, assessment, treatment .

Spina bifida cystica, assessment and treatment

Hydrocephalus assessment and treatment

Peripheral neuromuscular disorders

Muscular dystrophy, assessment and treatment

Types of muscular dystrophy

Poliomyelitis, assessment and treatment

Brachial palsies, palsy, assessment and treatment

Encephalitis assessment and treatment.

HAND CONDITIONS

Anatomy of the hand, assessment of the hand, peripheral nerve injuries including leprosy, tendon transfers, fractures of the hand, finger joint injuries, flexible implant orthoplasty, metacarpo phalangeal and inter phalangeal joints, amputations, digital and partial hand, Dupuytren's contractures, crushed hand, rheumatoid hand, pattern and guidelines for splinting.

COMMUNITY PHYSIOTHERAPY

- Psycho – social and socio – economical aspects of community
- Bioethics Ethico – moral codes of conduct physiotherapyethics.
- Population studies and epidemiological implications of impairment, handicap and disability, Health statistics.
- Biostatistics and research methodology
- Health administration – Management concept as applied to physiotherapy.
- Health and fitness. Environmental helath Physiotherapy as a drugless system. Public health education methods and appropriate media. Communications and interactions.
- Health care and health delivery systems in developing countries.

Community based rehabilitation :

- Nutrition and dietics
- Child – care – preventive and social Medicine.
- Immunisation programmes – malnutrition and early detection of disabling conditions and intervention.

Maternal – care – Ante – Natal and post – natal Physiotherapy. Educated child-birth, Post-natal complications and prevention of postural defects. Fitness programmes.

- Industrial Physiotherapy - prevention of injuries, physiological restoration, rehabilitation in Industrial injuries.
- Care of the aged, geriatric physiotherapy, life span yoga and simillar.

Psychosomatic approaches, in mangement of disorders of stress, change in life-style to reduce risk factors for disability. Drug dependence and iatrogenic disorders.

Obstetrics and Gynaecology :

Basic anatomy and physiology of the pelvis and reproductive organs.

Endocrine physiology related to reproductive Medicine.

Physiological changes occuring in female during pregnancy.

Musculo skeletal during pregnancy and adaptation of the mother.

Changes after delivery

Weak pelvic floor muscles and its significance and exercises.

Importance of prenatal exercise.

Pain - musculo skeletal pain during pregnancy, pain during delivery and pain relief.

Prenatal and post natal exercise.

Conditioning exercises

Breathing exercises

Exercises in non pregnant state.

Maintenance of posture during pregnant and breast feeding.

Psychological and emotional changes and coping with the demands of new born.

REFERENCE BOOK AND JOURNALS

These will depend on the field of physiotherapy being studies but will include texts such as the following.

Black, d. and Dummbleton, J.H. **Clinical Biomechanics**, 2nd edn. Churchill Livingstone 1987.

Bloom, B.C. **Health Psychology : a Psychosocial Prespective**, Prentice Hall, 1988.

Brooks, V.B. **The Neural Basis of Motor Control**, Oxford University press, 1986.

Clinics in Physical Therapy series.

Connely, B.H. and Montgomery, P.C. **Therapeutic exercise in developmental disabilities**, chattanooga, 1987.

Knott, M and Voss, D.E. **Proprioceptive Neuromuscular Facilitation**, 3rd edn. Harper and Row, 1984.

Magill, R.A. **Motor Learning – Concepts and Applications**, 3rd edn. Brown. 1989.

Sullivan, P.D. and Minor, M.A. **An Integrated Approach to Therapeutic Exercises** Reston, 1982.

Tecklin, J.S. **Pediatric Physical Therapy**, Lippincott, 1989.

Wall, P.D. and Melzack, R (eds) **Textbook of pain**, 2nd edn., churchill livingstone, 1989.

RECENT VOLUMES OF SCIENTIFIC JOURNALS INCLUDING

Archives of Physical Medicine and Rehabilitation

American Review of respiratory Disease

Australian journal of Physiotherapy

Chest

Child Development

Clinical Orthopaedics and Related Research

Clinical Rehabilitation

Critical Reviews in physical and rehabilitation Medicine

Cognitive Neuropsychology

Disability, Handicap and Society

International journal of Rehabilitation research

Journal of Bone and Joint Surgery

Journal of Human Movement Studies

Journal of Neurological Rehabilitaion

Pain

Preceptual and Motor Skills

PHYSICAL THERAPY

PHYSICAL AND OCCUPATIONAL THERAPY IN PEDIATRICS PHYSIOTHERAPY

SCANDINAVIAN JOURNAL OF REHABILITATION MEDICINE

Cyriak, J. **Text book of Orthopaedic Medicine** Vol I diagnosis of soft Tissue Lesions, 8th edn., Bailliere Tindall, 1982.

Donatelli R. ed., **Physical Therapy of the Shoulder**, 2nd edn., Churchill, Livingstone, 1991.

Donatelli R. and Wooden M.J.ed. **Orthopaedic Physical Therapy** Churchill, Livingstone, 1989.

Grant, R. (ed) **Physical Therapy of the Cervical and Thoracic Spine**, Churchill, Livingstone, 1987.

Grieve G.P. (ed.) **Modern Manual Therapy of the Vertebral Column**, Churchill, Livingstone, 1986.

Grieve, G.P. **Common Vertebral Joint Problems**, 2nd edn. Churchill, Livingstone, 1988.

Janda, V. **Muscle Function Testing**, Butterworths, 1983

Jayson, M.I.V. (ed.) **The Lumbar Spine and Back Pain**, 3rd edn., Churchill, Livingstone, 1987.

Kirkaldy-Willis, W.H. (ed.) **Managing low back pain**, 2nd edn., Churchill, Livingstone, 1988.

Mangine, R.E. **Physical Therapy of the Knee**, Churchill, Livingstone, 1988.

Travell, J.G. and Simons, D.G. **Myofascial pain and Dysfunction. The Trigger Point manual**, Williams and Wilkins, 1983.

Hogg, k. **Worksite health Development**, Health Development Foundation 1987.

Hurrell, J.J. Murphy, L.R., Sauter, S.L. and Cooper, C.L. **Occupational Stress ; Issues and Development in Research** Taylor and Francis, 1988.

Liston, C.B. **back Schools and Ergonomics** In : Twomey, L.T. and Taylor, J.R. (eds) **physical Therapy of the Low Back**, Churchill, Livingstone, 1987.

Mcphee B. and Worth, D.R. **neck and upper extremity pain in the workplace in** : Grant, R.ed **Physical Therapy of the cervical and Thoracic Spine**, Churchill, Livingstone, 1988.

Bidmeade, I. **Health law in South Australia**, 2nd edn. South Australian Health Commission, 1989.

Gardner, H.Ed. **The Politics of Health : The Australian Experience** Churchill, Livingstone, 1989.

Handy, C.B. **Understanding Organisations**, 3rd edn. Penguin, 1985.

Palmer, G.E. and Short, S.D. **Health Care and Public Policy : an Australian Analysis**, Macmillan, 1989.

Peters, T.J. and Waterman, R.H. **In Search of Excellence**, Harper and Row. 1984.

Pugh, D.S. Hichsen D.J. and Hinings, C.R. **Writers on Organisation**, 4th edn., Penguin.

South Australian Health Commision, **Primary Health Care in South Australia : A Discusion Paper**, SAHC, 1998.

Wilenski, P. **Public Power and Public Administration** Hale and Iremonger, 1986.

Campion. M.R. ed. Adult Hydrotherapy. A practical Approach, butterworth Heinemann, 1990.

Campion, Mr. ed. hydrotherpy in paediatrics, heinemann 1985.

Skinnerm A. and Thomsan, A. (ed.) Duffield's Exercise in water, Balliere Tindall, 1983.

Cruess, R.L. ed., The Musculoskeletal System : Embryology, Bio-Chemistry and Physiology, Churchill, Livingstone, 1982.

Knight, K.L. Cryotherapy : Theory, thechique and Physiology, Chattanooga, 1985.

Masoro, E.J. ed. CRC hand book of physiology in Agening, CRC press, 1981.

Melzack R. and Wall., P.D. The Challange of Pain, 2nd edn. Penguin 1988.

Michlovitz S.L. Thermal Agents in Rehabilitation, Davis 1986

Vander, A.J. Human Physiology : The machanisms of body Function, 5th edn. Mc. Graw-Hill, 1990.

Vidik, A. and Vuust, J. Biology of Collagen , Academic press 1980.

HUMAN NEUROBIOLOGY

JOURNAL OF NEUROSCIENCE

PROGRESS IN BRAIN RESEARCH SCIENCE

TRENDS IN NEUROSCIENCES

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