



SEMESTER – III

PAPE R CODE	SUBJECT NAME	THEOR Y HOURS	PRACTICA L HOURS	THEOR Y MARKS	PRACTICAL MARKS
DPT301	PHYSIOTHERAPY IN SPORTS & CARDIOLOGY CONDITIONS	45 Min	1 Hrs.	50	50
DPT302	BASIC LIFE SUPPORT (BLS) & CARDIOPULMONARY RESUSCITATION (CPR)	45 Min	1 Hrs.	50	50
DPT303	PHYSIOTHERAPY IN NEUROLOGIC	45 Min	1 Hrs.	50	50

	CONDITIONS AND REHABILITATION					
DPT304	BASIC SURGERY, ENT, OPHTHALMOLOGY, GYNAECOLOGY & OBSTETRICS	45 Min	1 Hrs.	50	50	

PHYSIOTHERAPY IN SPORTS & CARDIOLOGY CONDITIONS

THEORY

SPRITS PHYSIOTHERAPY

1. Introduction to Sports Physiotherapy

- Definition, scope and importance
- Role of physiotherapist in sports teams
- Pre-participation physical evaluation
- Warm-up and cool-down principles

2. Common Sports Injuries

- Classification: Acute vs. chronic
- Types:
 - Sprains and strains
 - Fractures and dislocations
 - Tendonitis, bursitis



- Ligament injuries (e.g., ACL tear)
- Meniscus injuries
- Stress fractures

3. Assessment in Sports Injuries

- History taking specific to sports
- Physical examination techniques
- Functional evaluation
- Special orthopedic tests

4. Management of Sports Injuries

- PRICE / POLICE protocol
- Electrotherapy modalities (Ultrasound, TENS, IFT)
- Manual therapy techniques
- Kinesio-taping and strapping
- Cryotherapy and thermotherapy
- Soft tissue mobilization
- Sports massage

5. Rehabilitation in Sports

- Phases of rehabilitation
- Strengthening and flexibility training
- Proprioception and balance exercises
- Agility and sport-specific drills
- Return-to-play criteria

6. Injury Prevention & Performance Enhancement

- Ergonomics and biomechanics in sports
- Fitness training and conditioning
- Nutrition basics in sports
- Role of orthotics and supportive devices

CARDIOPULMONARY PHYSIOTHERAPY

1. Introduction to Cardiopulmonary Physiotherapy

- Scope and importance
- Physiotherapist's role in cardiac & pulmonary care
- Basics of cardiopulmonary anatomy and physiology

2. Assessment in Cardiopulmonary Conditions



- History and clinical examination
- Chest expansion, breath sounds
- Pulse oximetry, spirometry, ABG interpretation
- Functional tests (6MWT, treadmill test, etc.)

3. Common Cardiopulmonary Conditions

- Cardiac:
 - Myocardial infarction
 - Congestive heart failure
 - Angina
 - Hypertension
 - Post CABG/PTCA conditions
- Pulmonary:
 - COPD (Chronic Bronchitis, Emphysema)

Bronchial Asthma

- Pneumonia
- Restrictive lung diseases
- Post-operative pulmonary complications

4. Physiotherapy Management in Cardiac Conditions

- Phase-wise cardiac rehabilitation (Phase I to IV)
- Exercise prescription in cardiac rehab
- Monitoring during exercise (HR, BP, ECG)
- Relaxation techniques and breathing exercises

5. Physiotherapy in Pulmonary Conditions

- Airway clearance techniques:
 - Postural drainage
 - Percussion & vibration
 - Huffing & coughing
- Breathing exercises:
 - Diaphragmatic
 - Segmental
 - Pursed-lip breathing
- Use of incentive spirometry
- Mobilization and functional training

6. Physiotherapy in ICU and Post-surgical Conditions

- Chest physiotherapy in ventilated patients
- Early mobilization
- Preventing DVT, pressure sores



- Positioning and suctioning techniques

PRACTICAL

➤ **SPORTS PHYSIOTHERAPY PRACTICALS**

❖ *Assessment Techniques*

- History taking in sports injuries
- Postural assessment
- Gait analysis (normal & abnormal)
- Joint range of motion (ROM) testing – manual and goniometric
- Muscle strength testing (MMT)

- Functional evaluation (e.g., hop test, agility drills)
- Special tests for:
 - ACL/PCL (e.g., Lachman test)
 - Meniscal injuries (McMurray's test)
 - Ankle sprain (anterior drawer test)
 - Shoulder instability (apprehension test)

❖ *Modalities in Sports Rehab*

- Application of:
 - **Cryotherapy** (ice packs, cold sprays)
 - **Thermotherapy** (hot packs, paraffin wax)
 - **Ultrasound therapy** for soft tissue healing
 - **TENS / IFT** for pain relief
 - **Shortwave diathermy (SWD)** for chronic injuries

❖ *Therapeutic Exercises*

- Stretching exercises for common sports-related tight muscles
- Strengthening exercises (static, isotonic, isokinetic)
- Balance and proprioception training using balance boards, foam pads
- Plyometric exercises
- Sport-specific drills and conditioning programs
- Core strengthening and flexibility exercises

❖ *Techniques & Skills*

- Demonstration of taping and strapping (ankle, knee, shoulder)
- Kinesiology taping techniques
- Use of orthotics, braces, and supports
- Soft tissue mobilization and sports massage
- Warm-up and cool-down routines for different sports



➤ **CARDIOPULMONARY PHYSIOTHERAPY**

❖ *Clinical Assessment Skills*

- Measurement of:
 - **Vital signs** (HR, BP, RR, SpO₂)
 - **Chest expansion**
 - **Breath sounds** (auscultation)
 - **Peak flow rate**
 - **6-Minute Walk Test (6MWT)**
 - **Spirometry basics** (FVC, FEV1)

❖ *Respiratory Therapy Techniques*

- Demonstration and practice of:
 - **Breathing exercises:** Diaphragmatic, segmental, pursed-lip
 - **Airway clearance techniques:**
 - Postural drainage
 - Percussion and vibration
 - Huffing and coughing techniques
 - **Incentive spirometry** usage
 - **Active cycle of breathing technique (ACBT)**

❖ *Cardiac Rehabilitation Skills*

- Exercise prescription based on cardiac condition and phase
- Aerobic exercise monitoring (treadmill, cycling, walking)
- ECG monitoring during exercise
- Relaxation techniques (Jacobson's, guided breathing)
- Progression through cardiac rehab phases (I-IV)

❖ *ICU & Post-Operative Physiotherapy*

- Suctioning technique (closed/open)
- Chest physiotherapy in ventilated patients
- Early mobilization in ICU/post-op patients
- Positioning techniques for respiratory benefit
- Prevention of complications: DVT, bed sores

BASIC LIFE SUPPORT (BLS) & CARDIOPULMONARY RESUSCITATION (CPR)

THEORY



1. Introduction to Emergency Care

- Definition and importance of BLS & CPR
- Goals of BLS and the "Chain of Survival"
- Legal and ethical considerations (Good Samaritan law)
- Responsibilities of a first responder/physiotherapist in emergencies

2. Basic Anatomy & Physiology

- Cardiovascular system: Heart anatomy & function
- Respiratory system: Lungs and airway structure
Physiology of oxygenation and circulation
- Pathophysiology of cardiac arrest, respiratory arrest, and shock

3. Basic Life Support (BLS) – Adults, Children, and Infants

- BLS sequence (C-A-B: Compressions, Airway, Breathing)
- Scene safety and victim assessment
- Recognition of sudden cardiac arrest
- Activation of emergency response system

a) Chest Compressions

- Proper hand placement
- Compression depth and rate
- Recoil and minimizing interruptions

b) Airway Management

- Head-tilt, chin-lift and jaw-thrust maneuvers
- Recovery position
- Use of oropharyngeal and nasopharyngeal airways

c) Rescue Breathing

- Mouth-to-mouth, mouth-to-mask techniques
- Bag-valve-mask ventilation (BVM)
- Oxygen administration basics

d) Use of AED (Automated External Defibrillator)

- Identification of shockable vs. non-shockable rhythms
- Safe AED use and voice prompts
- Pediatric vs. adult AED pads



4. CPR Techniques (Based on AHA/ERC Guidelines)

- One-rescuer and two-rescuer CPR (Adult/Child/Infant)
- High-quality CPR performance
- Ratio of compressions to breaths
- CPR for special situations:
 - Drowning victims
 - Trauma patients
 - Pregnant women
 - Choking (Heimlich maneuver)

5. Post-Resuscitation Care

- Monitoring of vital signs
- Maintenance of airway
- Oxygenation and circulation support
- Positioning and transfer of patient
- Documentation and handover to advanced medical team

6. Special Considerations

- CPR in COVID-19 and infectious cases
- Team-based resuscitation roles
- Communication during emergencies
- Simulation and mock drill training

PRACTICAL

➤ Patient Assessment & Scene Safety

- Demonstration of scene safety checks
- Checking patient responsiveness
- Activating emergency medical services (EMS)
- Checking breathing and pulse simultaneously
- Practice of calling for help and obtaining AED

❖ Chest Compressions

- Correct hand placement for adults, children, and infants
- Proper compression depth:
 - Adult: at least 2 inches (5 cm)
 - Child: about 2 inches (5 cm)
 - Infant: about 1.5 inches (4 cm)
- Compression rate: 100–120/min
- Full chest recoil technique
- Minimizing interruptions in compressions



- Switching compressors (2-person CPR) every 2 minutes

❖ **Airway Management**

- Head-tilt, chin-lift maneuver
- Jaw-thrust maneuver (suspected spinal injury)
- Checking airway for foreign body obstruction
- Practice with airway adjuncts:
 - Oropharyngeal airway (OPA)
 - Nasopharyngeal airway (NPA)

❖ **Rescue Breathing**

- Mouth-to-mouth and mouth-to-mask ventilation
- Bag-Valve-Mask (BVM) ventilation technique with and without oxygen
- Two-rescuer BVM technique
- Oxygen delivery and use of mask devices

❖ **Full CPR Sequence (C-A-B)**

- One-rescuer CPR (Adult/Child/Infant)
- Two-rescuer CPR (Adult/Child/Infant)
- Compression to breath ratios:
 - Adult: 30:2
 - Child/Infant (2-rescuers): 15:2
- Practice of coordinated CPR team roles

❖ **AED (Automated External Defibrillator) Use**

- Operating an AED: Turn on, attach pads, follow prompts
- Safety during defibrillation
- Placement of AED pads (Adult vs Pediatric)
- AED use in wet conditions or with hairy chest
- Practice of AED in CPR sequence (hands-on simulation)

❖ **Management of Choking**

- Relief of choking in responsive adult (Heimlich maneuver)
- Chest thrusts and back blows in infants
- Management of unresponsive choking victim
- Simulation of foreign body airway obstruction scenarios

❖ **Special Situations Practice**

- CPR in:



- Pregnant patient
- Drowning victim
- Suspected spinal injury
- Trauma patients
- Use of barrier devices (mask, face shield)
- Post-CPR recovery position placement

❖ **Team-based Resuscitation Simulation**

- Assigning roles: compressor, airway manager, AED operator
- Effective communication and leadership
- Practice full code scenarios with time tracking

PHYSIOTHERAPY IN NEUROLOGIC CONDITIONS AND REHABILITATION

THEORY

1. Introduction to Neurophysiotherapy

- Scope and importance of neuro physiotherapy
- Role of physiotherapist in neuro-rehabilitation
- Structure and function of the nervous system (CNS & PNS)
- Neuroplasticity and motor learning principles

2. Neurological Examination & Assessment

- Subjective & objective assessment
- Glasgow Coma Scale (GCS)
- Tone assessment (Modified Ashworth Scale)
- Reflex testing – superficial, deep, and pathological
- Cranial nerve testing
- Posture and gait evaluation
- Functional independence measures (FIM, Barthel Index)

3. Common Neurological Conditions

a) Central Nervous System (CNS) Disorders

- Stroke (CVA, Hemiplegia)
- Traumatic brain injury (TBI)
- Spinal cord injuries (Paraplegia, Quadriplegia)
- Parkinson's Disease
- Cerebral Palsy (CP)
- Multiple Sclerosis (MS)



- Motor neuron disease (MND)
- Ataxia and incoordination

b) Peripheral Nervous System Disorders

- Peripheral neuropathy
- Bell's palsy (Facial nerve palsy)
- Brachial plexus injury
- Carpal tunnel syndrome
- Guillain-Barré Syndrome (GBS)

4. Physiotherapy Assessment in Neurological Cases

- Assessment of tone, balance, coordination, gait, reflexes
- Muscle strength (MMT), endurance and joint range
- Sensory and motor system evaluation
- ADL (Activity of Daily Living) assessment

5. Neuro-Physiotherapy Treatment Approaches

- Bobath (Neurodevelopmental Treatment - NDT)
- Proprioceptive Neuromuscular Facilitation (PNF)
- Rood's techniques
- Brunnstrom's stages of recovery
- Task-oriented training
- Mirror therapy
- Constraint-induced movement therapy (CIMT)
- Vestibular rehabilitation

6. Physiotherapy Management of Specific Conditions

- Hemiplegia: Positioning, early mobilization, gait training
- Spinal cord injury: Bladder/bowel care, wheelchair training
- Parkinson's: Cueing strategies, relaxation, balance training
- Cerebral Palsy: Stretching, strengthening, orthotic prescription
- Ataxia: Coordination and balance training
- Neuropathies: TENS, strengthening, sensory re-education

7. Use of Modalities in Neurological Rehabilitation

- TENS and FES (Functional Electrical Stimulation)
- Infrared, hot packs, cold packs
- EMG biofeedback
- Use of orthotics and assistive devices (AFO, KAFO, walkers, wheelchairs)

8. Gait Training & Balance Rehabilitation



- Static and dynamic balance exercises
- Parallel bar training
- Assistive device training (stick, walker, crutches)
- Stair climbing, floor transfer techniques
- Coordination exercises

9. ADL Training & Functional Independence

- Basic ADL: grooming, dressing, feeding
- Advanced ADL: mobility, community reintegration
- Environmental modifications
- Patient and caregiver education

10. Community-Based Neuro-Rehabilitation

- Home exercise programs
- Family counseling and involvement
- Vocational rehabilitation
- Assistive technologies for independent living

PRACTICAL

❖ Neurological Assessment Skills

- **Level of consciousness assessment** (e.g., Glasgow Coma Scale)
- **Cranial nerve examination**
- **Motor examination:**
 - Manual Muscle Testing (MMT)
 - Tone assessment (Modified Ashworth Scale, Tardieu scale)
 - Reflex testing – superficial and deep tendon reflexes
- **Sensory examination:**
 - Light touch, pain, temperature, vibration, proprioception
- **Coordination testing:**
 - Finger-nose test
 - Heel-shin test
 - Rapid alternating movements
- **Gait assessment**
- **Balance testing** (e.g., Romberg's test, Berg Balance Scale)
- **Functional Independence Measures (FIM) / Barthel Index**

❖ Practical Management of Neurological Conditions

❖ Hemiplegia (Post-Stroke)

- Bed positioning techniques to prevent contractures



- Passive and active-assisted ROM exercises
- Mat activities and rolling techniques
- Bridging and transfer training
- Sitting and standing balance training
- Gait training with assistive devices

❖ *Spinal Cord Injury (Paraplegia / Quadriplegia)*

- Positioning to prevent pressure sores
- Chest physiotherapy and breathing exercises
- Strengthening of available muscle groups
- Wheelchair mobility training
- Transfer techniques (bed to wheelchair and vice versa)

❖ *Parkinson's Disease*

- Rhythmic cueing techniques
- PNF patterns for trunk rotation
- Relaxation exercises
- Posture correction and balance training
- Gait re-education

❖ *Cerebral Palsy*

- Stretching and passive mobilization
- Facilitation of voluntary movements
- Use of orthoses (AFOs)
- Balance and coordination activities
- ADL and functional training

❖ *Peripheral Nerve Injuries (e.g., Bell's Palsy)*

- Facial exercises
- Electrical stimulation
- Massage and sensory stimulation

❖ *Guillain-Barré Syndrome & Neuropathies*

- Strengthening exercises
- Sensory re-education
- Functional mobility training

❖ *Neuro-Physiotherapy Techniques*

- **Bobath (NDT) principles** – positioning, handling techniques



- **PNF (Proprioceptive Neuromuscular Facilitation)** patterns
- **Rood's technique** – facilitatory/inhibitory methods
- **Brunnstrom's stages** application in hemiplegia
- **Mirror therapy** and **CIMT (Constraint-Induced Movement Therapy)**

❖ **Balance, Coordination, and Gait Training**

- Static and dynamic balance exercises
- Coordination exercises (Thera-band, wobble board, ball work)



- Parallel bar gait training
- Use of walking aids (crutches, cane, walker)
- Stairs and obstacle training

❖ **Use of Electrotherapy & Assistive Devices**

- Application of:
 - TENS
 - Functional Electrical Stimulation (FES)
 - Infrared, hot and cold packs
- Demonstration and practice in:
 - EMG biofeedback
 - Use of orthotics (AFO, KAFO)
 - Wheelchair types and training
 - Transfer boards and adaptive aids

❖ **ADL Training & Functional Skills**

- Dressing, feeding, grooming techniques
- Bed mobility and transfers
- Toilet and bathing activities
- Home and environment modification advice
- Patient and caregiver education

BASIC SURGERY, ENT, OPHTHALMOLOGY, GYNAECOLOGY & OBSTETRICS

THEORY

1. BASIC SURGERY

a) Introduction to Surgery

- General principles of surgery
- Asepsis and antisepsis
- Wound healing and complications
- Pre-operative and post-operative care
- Types of sutures and surgical instruments (overview)

b) Common Surgical Conditions

- Abscess, cellulitis, ulcers
- Hernias (inguinal, umbilical, femoral)
- Haemorrhoids, fistula, fissures
- Varicose veins



- Burns and their classification
- Tumors: benign vs malignant

c) Orthopaedic Surgeries (Overview for PT)

- Open reduction internal fixation (ORIF)
- Joint replacement surgeries (hip, knee)
- Amputations and prosthetic rehabilitation

2. EAR, NOSE & THROAT (ENT)

a) Ear

- Anatomy and physiology of the ear
- Common ear disorders:
 - Otitis media
 - Otitis externa
 - Hearing loss (conductive, sensorineural)
 - Tinnitus, vertigo (Meniere's disease)
- Use of hearing aids

b) Nose

- Rhinitis, sinusitis
- Nasal polyps
- Deviated nasal septum (DNS)
- Epistaxis and nasal packing

c) Throat

- Tonsillitis, pharyngitis, laryngitis
- Voice disorders and speech-related ENT conditions
- Tracheostomy care and suctioning
- Sleep apnea (brief overview for rehab relevance)

3. OPHTHALMOLOGY

a) Anatomy and Physiology of Eye

- Parts of the eye and their functions
- Visual pathways and vision control

b) Common Eye Disorders

- Conjunctivitis



- Refractive errors (myopia, hypermetropia, astigmatism)
- Cataract and its management
- Glaucoma (overview)
- Retinopathy and diabetic eye conditions
- Eye injuries and first aid

c) Eye Care for Special Populations

- Eye care in stroke patients
- Low vision rehabilitation (basic intro)

4. GYNAECOLOGY

a) Female Reproductive Anatomy & Physiology

- Uterus, ovaries, menstrual cycle
- Hormonal changes and regulation

b) Common Gynaecological Conditions

- Menstrual disorders: amenorrhea, dysmenorrhea
- Polycystic ovarian syndrome (PCOS)
- Uterine fibroids
- Pelvic inflammatory disease (PID)
- Endometriosis

c) Surgical Procedures

- Hysterectomy
- D&C (dilation and curettage)
- Oophorectomy

5. OBSTETRICS

a) Pregnancy and Physiology

- Normal pregnancy: stages and physiological changes
- Labor and delivery process
- Puerperium (postnatal period)

b) Common Obstetric Conditions

- Pre-eclampsia and eclampsia
- Gestational diabetes
- Preterm labor



- Breech presentation
- Caesarean section

c) Postnatal & Antenatal Physiotherapy (Introduction)

- Importance of antenatal exercises
- Postnatal rehabilitation and physiotherapy role
- Pelvic floor muscle strengthening
- Back care during and after pregnancy

PRACTICAL

❖ BASIC SURGERY

❖ Clinical Observation & Skills

- Observation of dressing techniques for wounds, burns, ulcers
- Identification of surgical instruments (basic set)
- Observation of minor surgical procedures (e.g., incision & drainage)
- First aid for surgical emergencies (e.g., bleeding, burns, fractures)
- Pre- and post-operative physiotherapy care
- Observation of:
 - Hernia repair
 - Amputations
 - Orthopaedic surgeries (e.g., joint replacement)

❖ Physiotherapy Role in Surgery

- Early mobilization in post-op cases
- Breathing exercises to prevent post-op pulmonary complications
- Positioning to prevent bedsores and contractures
- Limb elevation and compression techniques

❖ ENT (EAR, NOSE, THROAT)

❖ Examination Skills

- Observation of otoscopic, rhinoscopic, and laryngoscopic examinations
- Understanding tuning fork tests: Rinne's and Weber's tests
- Observation of audiometry reports

❖ Physiotherapy Applications

- Vestibular rehabilitation exercises for balance disorders
- Observation of tracheostomy care and suctioning



- Postural drainage and airway clearance in ENT-related conditions
- Voice exercises and breathing techniques (for laryngeal conditions)

❖ **OPHTHALMOLOGY**

❖ *Examination & Observation*

- Eye chart reading (Snellen's chart)
- Observation of basic eye screening (vision testing, pupil reflex)
- Clinical signs in common eye disorders (e.g., cataract, conjunctivitis)

❖ *Physiotherapy Role*

- Observation of eye care in stroke or brain injury rehab
- Positioning and protection of eye in facial nerve palsy
- Orientation and mobility training in low vision patients

❖ **GYNAECOLOGY**

❖ *Clinical Observation*

- Observation of pelvic exam procedure (demo/simulation only)
- Menstrual care education sessions
- Observation of common gynaecological surgeries (e.g., hysterectomy)

❖ *Physiotherapy Applications*

- Pelvic floor muscle exercise demonstration (Kegel's exercises)
- Pain management techniques in dysmenorrhea and pelvic pain
- Post-surgical rehabilitation after gynaecologic procedures
- Teaching hygiene and ergonomic practices during menstruation

❖ **OBSTETRICS**

❖ *Antenatal Care*

- Observation of antenatal check-up and fetal monitoring
- Demonstration of antenatal exercises:
 - Breathing techniques
 - Posture training
 - Stretching and mobility exercises

❖ *Postnatal Care*

- Physiotherapy after normal delivery and caesarean section



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- Teaching postnatal exercises:
 - Abdominal tightening
 - Pelvic floor strengthening
 - Back care and body mechanics
- Positioning for breastfeeding and baby handling