

Government Physiotherapy College, Raipur, C.G.

SYLLABUS

Bachelor of Physiotherapy

Third Year

GENERAL SURGERY, OBSTETRICS & GYNECOLOGY

GENERAL SURGERY- 45 HRS LECTURES & 20 HRS DEMONSTRATIONS

COURSE DESCRIPTION

This course covers General Surgery, Plastic Surgery, obstetrics and gynecology.

COURSE OBJECTIVES

The objective of this course is to demonstrate a general understanding of the diseases that therapists would encounter in their practice. They should have a 'brief idea of the aetiology and pathology, what the patient's symptoms and the resultant functional disability. This would help the candidates to understand the limitations imposed by the diseases on any therapy that may be prescribed.

1. Describe the effects of surgical trauma and anesthesia in general.
2. Classify, clinically evaluate and describe the surgical management in brief.
3. Describe preoperative evaluation, indication, and various surgical approaches in abdominal, thoracic, cardiac, neurological, plastic, peripheral vascular surgeries.
4. Recall the surgical approaches in the form of line diagram and will be able to describe the components of soft tissues cut to reach the target tissues and the possible postoperative complications with special reference to cardiovascular pulmonary functions. Scar and wound management.

Topics:-

1. History and introduction of surgery with relevance to physical therapist.
2. Surgical procedures – Indications in general performance of surgical procedures
3. Role of asepsis and antiseptics in surgical procedures
4. Principles of surgical examination i.e. preoperative assessment, intraoperative assessment, post operative assessment.
5. Effects of anesthesia and surgical trauma – Pulmonary, hemorrhage, shock
6. Complications of surgery with special reference to physiotherapy – Infective, functional, abdominal, respiratory, neurological, musculoskeletal, complication related to prolonged immobilization.
7. Burns – Causes, classification, complication, conservative management of patients. With special reference to postural deformities due to burns, methods of prevention and precautions. Mentioning cosmetic and functional treatment measures.
8. Abdominal wall: Brief surgical anatomy, abdominal incisions, external opening of abdominal viscera (colostomy), resultant potential complications and management.

9. Neurosurgery : In brief

Head injury – Classification, clinical features, complication and management with special reference to management of unconscious patient.

10. Vascular disorders – clinical features, complication and management of arterial occlusions, dilatations.

- a. Gangrene – classification, clinical features , and management
- b. Superficial and deep vein thrombosis – pathogenesis, prevention and management.
- c. Lymph oedema – outline of causes, clinical features and management

11. Thorax –

- a. Wall anatomy and various operative Incisions over thorax.
- b. Chest injuries – classification, causes, clinical features, complication and management i.e. fracture ribs, flail chest, stove in chest, Pneumothorax and hydro-pneumothorax – clinical features. and management with overview of various drainage systems
- c. Pulmonary resection - classification , causes , clinical features , complication and management
- d. Heart - classification, causes, clinical features, complication and management of various surgical heart diseases ie CABG. Valve replacements, congenital heart diseases- ASD, PDA, VSD, coarctation of aorta.
- e. Brief introduction about cardiopulmonary bypass, Intra aortic balloon counter pulsation.

12. Brief description of first aid, principles of cardiopulmonary resuscitation and trauma.

OBSERVATION: One abdominal, thoracic and skin graft surgery on video session.

RECOMMENDED TEXT BOOKS

- 1]- Under-graduate Surgery by Nan
- 2]- Bailey & Love`s short practice of Surgery- latest edition.

OBSTETRICS AND GYNAECOLOGY- 15 Hrs

1. Outline the anatomy and physiology of male and female reproductive system.
2. Principles of clinical examination, investigation, diagnosis and prognosis in female reproductive system disorders.
3. Describe an ante- natal program in preparation for labour: ante – natal training, breathing, relaxation, pelvic and lower extremity exercises.
4. Outline the mechanism of labour and post – natal management after normal delivery, forceps delivery and caesarian sections.
5. Outline the pre- disposing factors and the role of exercises in the management of incontinence and prolapse uterus
6. Family Planning methods
7. Cancer Cervix – clinical features and management.

CLINICAL (20 Hrs)

Independent clinical examination, presentation & recording of -

1. Five pelvic floors,
2. Three pregnant uteri
3. Two mothers during puerperium

OBSERVATION

Minimum one normal & one caesarean delivery, one case of tubectomy & one Hysterectomy /repair of the urogenital prolapse

RECOMMENDED TEXT BOOKS

- 1] Text book of Gynaecology- by Dutta- New Central book agency.
- 2] Text book of Obstetrics by Dutta-- New Central book agency.
- 3] Text book of Gynaecology – by Shaw.

PHYSIOTHERAPY IN GENERAL MEDICINE AND GENERAL SURGERY

COURSE DESCRIPTION

This course involves a description of the assessment and treatment of patients with general medical and general conditions.

COURSE OBJECTIVES

The student will be able to conduct a safe and effective treatment of patients with General medical and general surgical conditions

SECTION A

1. Review of the pathological changes and principles of management by Physiotherapy in the following conditions [10 Hours]
 - a. Diabetes Mellitus
 - b. Oncology
 - c. Geriatric Medicine.
 - d. Inflammation- acute, chronic and suppurative.
 - e. Edema – Traumatic, obstructive, paralytic, edema due to poor muscle and laxity.
 - f. Common condition of Skin – Acne, Psoriasis, Alopecia, Leucoderma.
 - g. Deficiency Diseases – Rickets, Obesity, Osteoporosis & other deficiency disorders related to Physiotherapy.

2. Special Considerations [5Hours]
 - a. Problems of Elderly
 - i) Medical, Sensori- motor, cognitive falls.
 - ii) Frail and Institutionalized elder
 - iii) Functional assessment of the elderly.

SECTION B

3. General Gynaecology and Obstetrics and ENT [7Hours]

Review of the pathological changes and principles of pre and postoperative management by Physiotherapy of the following conditions:

 - a. Common abdominal surgeries, including GIT, liver, spleen, kidney, bladder, etc.
 - b. Common operations of reproductive system, including surgical intervention for child delivery. Ante natal and post natal Physiotherapy management.
 - c. Common operations of the ear, nose, throat and jaw as related to Physiotherapy.
 - d. Common organ transplant surgeries – heart, liver, bone marrow, etc.

4. Wounds, Burns and Plastic Surgery [8Hours]

Review of the pathological changes and principles of pre and postoperative management by Physiotherapy of following conditions:

- a. Wounds, ulcers, pressure sores.
- b. Burns and their complications.
- c. Common reconstructive surgical procedures for the management of wounds, ulcers, burns and consequent contractures and deformities.

5. Physiotherapy in General Surgery [10Hours]

Asses the patients medical history, past treatment, breathing pattern, ability to cough and pain. Identify problems: Pain, increased secretion, defective posture and decreased exercise tolerance. Treatment techniques: Breathing exercise, huffing and coughing, mobilizing exercise, posture correction and graduated exercise programme.

LAB HOURS – 40 Hrs

The students will be shown patients of relevant diseases and disorders for:

- a. History taking of the conditions of patients.
- b. Assessment
- c. Clinical diagnosis of the presentations.
- d. Investigations and tests of different clinical presentations
- e. Physiotherapy management of the various disorders & surgeries

RECOMMENDED BOOKS

1. Tidy's physiotherapy.
2. Cash's Text Book of General medical & surgical condition for Physiotherapists.
3. Physiotherapy in Gynaecological & Obstetrical conditions- Polden
4. Women's health- Sapsford
5. Therapeutic Exercise – Kisner
6. Text book of Work Physiology- Astrand P A

CLINICAL CARDIO RESPIRATORY

COURSE DESCRIPTION

Following the basic science and clinical science courses, this course introduces the student to the cardio - thoracic conditions which commonly cause disability. Particular effort is made in this course to avoid burdening the student with any detail pertaining to diagnosis, which will not contribute to their understanding of the limitations imposed by cardio - thoracic pathology on the functioning of the individual.

COURSE OBJECTIVES

The objective of this course is after 60 hours of lectures & 40 hrs demonstrations. In addition to clinics, the student will be able to demonstrate an understanding of cardio-thoracic conditions causing disability and their management.

COURSE OUTLINE

SECTION A

ANATOMY AND PHYSIOLOGY (5 Hrs)

1. Describe in brief the anatomy of the heart and its blood supply and briefly outline the electrical activity of the myocardium and normal ECG.
2. Describe in detail the anatomy of the lungs, bronchi and bronchopulmonary segments.

CARDIOVASCULAR DISEASE (20 Hrs)

3. General Examination of the Cardiovascular System, Basic Investigations : ECG, Exercise Stress Testing, Radiology ; Clinical manifestations of Cardiovascular disease ; Definition, Etiology, Clinical features, signs and symptoms, complications, management and treatment of following diseases and disorders of the heart : Pericarditis, Myocarditis, Endocarditis, Rheumatic Fever – resulting in valve disorders, Ischemic Heart Disease, Coronary Valve Disease, Congenital disorders of the Heart i.e ASD, VSD, PDA TOF , Cardiac Arrest ; Examination and Investigations of diseases of arteries and veins ; Hypertension : Definition, causes, classification, types, assessment, investigations and management.

SECTION B

RESPIRATORY DISEASE (20 Hrs)

4. Examination of the Respiratory System – Investigations : Chest Radiographs, Pulmonary Function Testing, Arterial Blood Gas Analysis ; Clinical features, signs and symptoms,

complications, management and treatment of following lung diseases : Chronic Bronchitis, Emphysema, Asthma, Bronchiectasis, Cystic Fibrosis, Upper Respiratory Tract Infections, Pneumonia, Tuberculosis, Fungal Diseases, Interstitial Lung Diseases, Diseases of the pleura, diaphragm and chest wall ; Respiratory failure – Definition, types, causes, clinical features, diagnosis and management.

FIRST AID AND EMERGENCY (5 Hrs)

5. Introduction to First aid, importance of first aid, Golden rules of first aid, scope and concept of emergency, CPR.

CLINICAL - Evaluation, presentation and recording of two cases each in

- i) Respiratory Conditions
- ii) Cardio Vascular Conditions

BOOKS RECOMMENDED -

- 1) API-Text book of Medicine-5th edition
- 2) Golwalla-Medicine for students

PHYSIOTHERAPY IN CARDIO RESPIRATORY AND VASCULAR CONDITIONS

COURSE DESCRIPTION

This course involves a description of the assessment and treatment of patients with cardiopulmonary conditions.

COURSE OBJECTIVES

The student will be able to conduct a safe and effective treatment of patient with cardiopulmonary conditions

THEORY-100HRS

SECTION A

A. Anatomy [5hour]

Review the regional anatomy of thorax, upper respiratory tract - trachea and bronchial tree. Lung and broncho pulmonary segments, Differences between and adult and pediatric lung, Muscles of respiration, Heart and great vessels, Movements of the chest wall and surface anatomy of lung and heart.

B. Physiology [5hour]

Review the mechanics of respiration - inspiration and expiration, lung volumes, respiratory muscles, compliance of lung and chest wall, work of breathing, dead space, gas exchange in lung and pulmonary circulation.

C. General Overview [10 hour]

Assessment: Describe physical assessment in cardio respiratory dysfunction:

Inspection: Posture (recumbent, erect, orthopneic): breathing pattern (rate, rhythm, use of accessory muscles), chest movement (summery, Intercostals and diaphragmatic components), Chest deformity (Barrel chest, pigeon chest), Spinal deformity(scoliosis, kyphosis, kyphoscoliosis), sputum (color, type, volume, consistency), cough (types, productive/non-productive, presence of a normal cough reflex).

Palpation: Tactile and vocal fremitus, mobility of thoracic spine and rib cage.

Percussion: Dullness and hyper resonance.

Auscultation: Normal and abnormal breath sounds.

D. Measurement [4 hour]

Chest expansion at different levels (auxiliary), nipple, xiphoid); exercise tolerance (six minute walking test); post - operative range of motion and muscle assessment.

E. General Overview of physiotherapy treatment

Physiotherapy techniques to increase lung volume – controlled mobilization, positioning,

Breathing exercises: Physical Treatment: Indication, goals and procedure of breathing exercises. Describe diaphragmatic breathing, localized basal expansion, apical expansion, specific segmental exercise raising the resting respiratory level. Chest mobilization exercises, Neurophysiological Facilitation of Respiration, Mechanical aids - Incentive Spirometry, CPAP, IPPB [**6 Hours**]

Physiotherapy techniques to decrease the work of breathing – Measures to optimize the balance between energy supply and demand, positioning, Breathing re-education – Controlled breathing during walking and during functional activity., Relaxation positions for the breathless patient - high side lying, forward lean sitting, relaxed sitting, forward lean standing, relaxed standing, Exercise for the breathless patient, Exercise tolerance testing and exercise programme, Oxygen therapy, Mechanical aids – IPPB, CPAP, BiPAP [**6 Hours**]

Physiotherapy techniques to clear secretions – Hydration, Humidification & Nebulisation, Mobilisation and Breathing exercises, Postural Drainage Techniques including indications, general precautions and contra-indications, preparation, drainage of individual bronchopulmonary segments, modified postural drainage and continuing postural drainage as a home programme, Manual techniques – Percussion, Vibration and Shaking, Rib Springing, ACBT, Autogenic Drainage, Mechanical Aids – PEP, Flutter, IPPB, Facilitation of Cough and Huff, Nasopharyngeal Suctioning- Techniques of sterile nasopharyngeal and endotracheal suctioning [**6 Hours**]

G. Mechanical Respiration.

i. Respiratory failure, Oxygen therapy Types of mechanical ventilator

Classify ventilator by their cycling control (volume cycling, pressure cycling, and time cycling and mixed cycling). Indications, various commonly used modes of mechanical ventilation their indications, advantages and disadvantages i.e IMV, SIMV, CPAP, PEEP, IPPB, IPPV, High frequency jet oscillator, BiPAP, and complications of mechanical ventilation. [**6 hour**]

ii. Principles of Aerosol Therapy. Describe the physical properties of aerosols and their deposition in the alveoli. Describe the principles of operation of nebulisers. [**2 hour**]

iii. Principles of humidification therapy and methods of correcting humidity deficits. Describe the principles of operation of pass - over humidifiers and bubble -diffusion humidifiers. [**2 hour**]

H. Physiotherapy in Obstructive Lung Diseases [6 hour]

Assess: Effort of breathing. Extent of wheeze, pattern of breathing, sputum production, chest deformity, exercises tolerance (Patients efforts tolerance.)

Identify problems: Decreased outflow due to bronchospasm, anxiety due to difficulty in ventilation, exhaustion due to increased work of disturbed breathing, increased secretions which are difficult to remove, decreased exercise tolerance.

Demonstrate treatment techniques: Relaxation postures and techniques, reassurance and education about disease. Controlled breathing, breathing exercise, postural drainage, vibratory shaking, huffing and coughing, graduated exercise programme and posture correction.

I. Physiotherapy in Chest Infections [5 hour]

Assess: Sputum, cough, fever and dyspnea.

Identify problems: Productive cough with risk hemoptysis, exhaustion due to increased work of breathing, chest deformity, and decreased exercise tolerance.

Treatment techniques: postural drainage with use of adjuncts, percussion, vibration, huffing, and coughing to expectorate mobilizing exercises to thorax and graduated exercise.

SECTION B**J. Physiotherapy in Restrictive Lung Disorders [6 hour]**

Assess: Chest expansion at different levels, mobility of thorax and spine, posture (kyphosis or scoliosis) and tests for exercises tolerance (six minutes walking test). Identify problems: Decreased expansion of lung due to restriction of chest wall movement causing decreased ventilation, defective posture and decreased exercise tolerance.

Demonstrate treatment techniques: Vigorous mobilizing exercises to thorax and spine, breathing exercise to increase ventilation and drain secretions, exercises for posture correction, graduated exercises to increase tolerance.

K. Principles Of Intensive Care Physiotherapy [5 hour]

Knowledge of the following equipment: Endotracheal tubes, tracheostomy tubes, Humidifiers, ventilators, High frequency ventilators, differential ventilators, CPAP masks, suction pump, Electrocardiogram. Pressure monitors - arterial, central venous, pulmonary artery and pulmonary wedge, Intracranial. Temperature monitors.

Assess: special instructions pertaining to any operation performed, respiration, level of consciousness, Colour, blood pressure, pulse, temperature, sputum expectorated (colour and quantity), drugs (time last does of analgesic given), drains, presence of pacemaker or intra aortic

balloon pump. ECG and blood gas results. Describe chest radiograph with respect to expansion of lungs, size of heart, and presence of secretions and placement of chest tubes.

L. Physiotherapy after Pulmonary Surgery [5 hour]

Preoperative: Demonstrate treatment techniques: Explanation to patient, care of incision, mechanical ventilation, breathing exercise, huffing and coughing, mobilizing exercise, posture correction, graduated exercise programme.

Post - operative: Assess: Special instructions pertaining to operative procedure performed, breath sounds, cyanosis, respiratory rate, temperature and pulse, blood pressure, drainage from pleural drain (bubbling or swinging) sputum expectorated, analgesia, movements of chest wall (symmetry) position of patient and effort of breathing, chest radiograph and blood gases.

Identifying problems: Pain, inter costal drains in situ, decreased air entry, retained secretions, decreased movement of the shoulder of affected side, decreased mobility and poor posture.

Treatment techniques: Deep breathing and segmental breathing exercises, vibrations, percussions, huffing and coughing, full range active -assisted arm exercises, ankle foot exercises, trunk exercises, posture correction, positioning of patient, IPPB and inhalations.

M. Physiotherapy after Cardiac Surgery [5 hour]

Pre operative: Assess patients of medical history, normal breathing pattern of patient, pulse, respiratory rate, BP, thoracic mobility, posture and patients exercise tolerance. Identifying problems: Excess secretions, decreased mobility of thorax, defective posture, decreased exercised tolerance.

Treatment techniques: Explain to the patients about their operation and about the incision, ICU, Endotracheal tube. Central lines, nasogastric tube, catheter, ECG leads, drains, peripheral lines, temperature probe etc. Teach breathing exercises, splinting of incision, huffing and coughing, correct posture, range of motion exercises to trunk and shoulders, active exercise to ankle and foot.

Post operative: Assess special instructions pertaining to operative procedure performed, type of incision, blood pressure, pulse rate, respiration, colour, time of last analgesic dose, drains, temperature, ECG, chest X -ray and blood gases.

Identify problems: Pain, decreased air entry, retained secretions, reduced leg movements, decreased mobility.

Treatment techniques: Deep breathing exercises, suctioning, active/assisted exercises to arm and leg, graduated exercise programme.

N. Physiotherapy in Rehabilitation after Myocardial Infarction [5 hour]

Role of the Physiotherapist in a coronary care unit during the first 48 hours. Principles of formulation of an exercise programme: Bed exercises, walking, stair climbing. Home exercise programme and advice on leisure activities. Describe physiotherapy for complications after myocardial infarction: Chest infections, cerebral embolism and shoulder hand syndrome.

O. Neonatal and Pediatrics Physiotherapy [5 hour]

Chest physiotherapy for children, The neonatal unit, Modifications of chest physiotherapy for specific neonatal disorders, Emergencies in the neonatal unit

P. Health Fitness and Promotion [5 hour]

Fitness Evaluation, Analysis of Body composition, Evaluation and prescription of Exercise, Factors affecting exercise Performance, Exercise Prescription for Specific groups : Elderly, Women and Children.

Q. Applied Yoga in Cardio-respiratory conditions [1 Hours]**CARDIOPULMONARY PHYSIOTHERAPY LAB HOURS – 40 Hrs**

The students will be shown patients of relevant diseases and disorders for:

- a. History taking of the conditions of patients.
- b. Assessment
- c. Clinical diagnosis of the presentations.
- d. Investigations and tests of different clinical presentations
- e. Physiotherapy management of the various disorders & surgeries

RECOMMENDED BOOKS

1. Tidy's physiotherapy.
2. Cash's Text Book of Chest, Heart, Vascular Disorders for Physiotherapists.
3. The Brompton Guide to chest physiotherapy DU Gasket [Completed]
4. Physical Rehabilitation Assessment and Treatment – O'Sullivan Schmitz
5. Elements in Pediatric Physiotherapy – Pamela M Eckersley
6. Essentials of Cardio Pulmonary Physical Therapy by Hillegass and Sadowsky
7. Cardio pulmonary Symptoms in physical Therapy practice Cohen and Michel
8. Chest Physiotherapy in Intensive Care Unit by Mackenzi
9. Cash's Text book of General Medicine and Surgical conditions for Physiotherapists.
10. Physical Therapy for the Cancer patient by M.C Garvey
11. Physiotherapy in Cardio- Vascular Rehabilitation-Webber

BIO-MECHANICS

COURSE DESCRIPTION

This course supplements the knowledge of anatomy and enables the student to have a better understanding of the principles of biomechanics and their application in musculoskeletal function and dysfunction.

COURSE OBJECTIVE

The objective of this course is that after 100 hrs. of lectures and 50 hrs demonstrations and practical the student will be able to demonstrate an understanding of the principles of Biomechanics and Kinesiology and their application in health and diseases.

SECTION A

A. Basic concepts of biomechanics (kinetics and kinematics) (9 Hrs)

1. Introduction and role of biomechanics in physiotherapy
2. Analysis of motion- kinematics description
3. Analysis of force producing movement-kinetic analysis
 - Internal and external force
 - Reaction forces
 - Concurrent and parallel force system
 - Friction
 - Torque

B. Joint structure and function (8 Hrs)

1. Basic principles of human joint design and a human joint
2. Materials in human joint
3. General properties of connective tissues
4. Classification of joint
5. Joint motion
6. Effect of disease, injury and immobilization

C. Muscle structure and function (8 Hrs)

1. Describe Mobility and stability functions of muscles.
2. Describe elements of muscle structure- Composition of a muscle fibre, the motor unit, types of muscle fibres, muscle fibre size, arrangement and number, Muscle tension, length-tension relationship.
3. Describe the types of muscle contraction, speed and angular Velocity, Applied load, Voluntary control, Torque & Isokinetic exercise.
4. Summarize factors affecting muscles, tension.

5. Classify muscles- spurt and shunt muscles, Tonic and phasic muscles.
6. Factors affecting muscle function: Type of joint and location of muscle attachment, number of joints passive insufficiency, Sensory receptors.

D. Bio-mechanics of peripheral joints (60 Hrs)

(Joint structure and function of following joints)

1. Shoulder complex
2. Elbow complex
3. Wrist and hand complex

SECTION B

4. Hip complex
5. Knee complex
6. Ankle and foot complex
7. Vertebral column

(Applied aspect- General effect of disease, injury, aging, immobilisation)

E. Posture (5 Hrs)

Definition, factors responsible for posture, relationship of posture, factors responsible postural imbalance in static and dynamic position, Biomechanical analysis of posture. Effects of age, pregnancy and occupation on posture.

F. Gait (10 Hrs)

1. Definition
2. subdivision(RLA & traditional)
3. Distance and time parameters
4. Gait determinants
5. Muscle activity at hip, knee, ankle during gait(brief) and ROM
6. Upper limb & trunk pelvis motion while walking
7. Pathological gait
 - Hip extensor
 - Hip abductor

PRACTICAL

1. Study the effects of forces on objects.
2. Determination of the C.G. of an object
3. Identification of axes and planes of motion at the joints of spine, shoulder girdle, joints of upper extremity, pelvic girdle and joints of lower extremity.
4. Study the effects of different types of muscle contraction, muscle work group action of muscles and coordinated movement.

5. Analysis of normal posture respect to L.O.G. and the optimal position of joints in anterior, posterior and lateral views.
6. Analysis of normal gait and measurement of spatial- temporal features.
7. Kinetics & kinematics of various activities of daily living – e.g.- supine to sitting, sitting to standing, squatting, climbing up & down, lifting, pulling, pushing, overhead activities, walking, running, jogging.

RECOMMENDED TEXT BOOKS

1. Joint Structure and Function – A comprehensive Analysis, JP Bros Medical Publishers, New Delhi.
2. Brunnstrom, Clinical Kinesiology, JP Bros Medical Publishers, Bangalore, 5th Ed 1996, 1st Indian Ed 1998.
3. Clinical Kinesiology for Physical Therapist Assistants, JP Bros Medical Publishers, Bangalore, 1st Indian Ed 1997.