

Subject Title:	PT in Cardio Respiratory Condition (ELECTIVE I)
Subject Code:	1PT2030201
Year:	Second Year MPT
Pre-requisite Subject	- NONE -

Objectives of course:

1. The extension of knowledge, expertise and skills towards the Cardio-Respiratory Conditions in improvement of professional practice.
2. It provides advanced study and reflection on practice in various Cardio-Respiratory Conditions in the physiotherapy practice by both drawing on a student's professional experience and expertise, and extending it.

Subject Contents (150 Hours)

Anatomy

Fundamentals in cardio-respiratory conditions

- 1 Cardio-Vascular System: Mediastinum: Divisions and contents Pericardium: Thoracic Wall: position, shape and parts of the heart; conducting System; blood Supply and nerve supply of the heart, anatomy of arteries, veins, and capillaries.
- 2 Respiratory system: Outline of respiratory passages. Pleura and lungs: position, parts, relations, blood supply and nerve supply; Lungs – emphasize on Bronchopulmonary segments. Diaphragm: Origin, insertion, nerve supply and action, openings in the diaphragm. Intercostal muscles and Accessory muscles of respiration: Origin, insertion, nerve supply and action.

Physiology:

Cardiac System

- 3 Cardiac muscles: Structure. Ionic basis of action potential and pacemaker potential. Properties.
- 4 Conducting system: Components. Cardiac Cycle: Definition. Phases of cardiac cycle. Heart sounds – causes, character.
- 5 Cardiac Output: Definition. Normal value. Determinants. Stroke volume and its regulation. Heart rate and its regulation and their variations.
- 6 Arterial Blood Pressure: Definition. Normal values and its variations. Determinants. Peripheral resistance. Regulation of BP.
- 7 Arterial pulse.
- 8 Shock – Definition. Classification – causes and features
- 9 Regional Circulation: Coronary, Cerebral and Cutaneous circulation.
- 10 Hypoxia: Effects of hypoxia. Types of hypoxia. Asphyxia. Cyanosis – types and features.
- 11 Periodic breathing – definition and types.
- 12 Artificial respiration

Cardio-Pulmonary Conditions- Biomechanics, pathomechanics & Applied Anatomy

- 1 General structure and function
- 2 Rib cage and the muscles associated with the rib cage
- 3 Ventilatory motions: its coordination and integration
- 4 Developmental aspects of structure and function
- 5 Body positioning and various systemic changes
- 6 Changes in normal structure and function I relation to pregnancy, scoliosis and COPD
- 7 Respiratory muscle fatigue and training
- 8 Development of the Cardio Vascular, Pulmonary systems and deviations from the normal development.

- 9 Age related changes in Cardiovascular & Pulmonary System.
- 10 Normal and abnormal responses of Cardiovascular & Pulmonary System during Exercise
Cardio-Pulmonary Conditions - Assessment and Evaluation
- 1 1. Assessment of cardio-pulmonary system, Adult and Pediatric:
a) Medical Chart Review b) Patient/Family interview
- 2 2. Vitals:
a). Heart rate measurement b). Blood pressure measurement c.) Respiratory rate measurement d)
Temperature measurement
- 3 3. Physical Therapy Examination:
a)Inspection b). Auscultation c). Palpation d). Percussion
- 4 4. Exercise Assessment:
a). Exercise Stress testing b). Activity and Endurance Evaluation c).Walk tests
- 5 Clinical Monitoring:
a). Heart Rate and heart rate response to exercise b). Heart rhythm c). ECG monitoring d). Pace-
maker rhythm e). Blood Pressure and Blood pressure response to exercise f). Respiratory rate and
respiratory response to exercise g). ABG analyses h). Pulse Oximetry, oxygen saturation monitoring
i). RPE j).Other signs and symptoms of exercise intolerance
k). Exercise capacity Other assessment tools: Body composition and body composition measures .
- 6 Other assessment tools: Body composition and body composition measures
- 7 Respiratory muscle strength and endurance
- 8 Autonomic dysfunction
- 9 Questionnaires survey and Scales
- 10 Assessment of findings: a. Chest assessment b. Activity and endurance evaluation c. Defining the
physiotherapy problem
- 11 Basic interpretation of investigative procedures used in cardio-respiratory conditions: a. Thoracic
imaging b. Chest X-ray c. CT scan d. MRI, e. Bronchogram.
- 13 Evaluation Of peripheral vascular diseases
- 14 Clinical decision making skills in functional diagnosis in neonate, pediatrics, adults and geriatrics
- 15 Laboratorial investigations
- 16 Differential diagnosis
- 17 ADL analysis
- 18 Evidence based practice