

Dr. M.G.R. EDUCATIONAL AND RESEARCH INSTITUTE

**(DR. M.G.R. DEEMED UNIVERSITY)
CHENNAI**

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

These regulations shall come into force from the academic year 2012-2013.

OBJECTIVES:

At the end of the completion of Master of Physiotherapy, the Postgraduate will be able to:

1. apply advanced knowledge of clinical science in problem solving
2. gather and interpret information within a holistic frame work pertaining to health.
3. design, implement and monitor appropriate therapeutic interventions
4. apply scientific principles to the concepts of health, illness and disability
5. promote health
6. apprise the social and political context of health care.
7. undertake independent research projects.
8. promote Physiotherapy education.
9. apprise action and social skills of self and others.

BRANCHES:

1. M.P.T in orthopaedics.
2. M.P.T in Neurology.
3. M.P.T in cardio Respiratory Diseases.
4. M.P.T in Paediatric Neurology.
5. M.P.T in sports physiotherapy.
6. M.P.T in hand rehabilitation
7. M.P.T in obstetrics & gynaecology
8. M.P.T in community physiotherapy.

ELIGIBILITY:

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

REGISTRATION:

A Candidate admitted to this course shall register with this University by remitting the prescribed fee along with the application form for registration duly filled in and forwarded to the University through the Head of the Institution within the stipulated time.

DURATION OF THE COURSE :

The period of the 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.

COMMENCEMENT OF THE COURSE:

The course will commence from the First of October every Year.

CUT OFF DATES FOR ADMISSION TO THE EXAMINATION:

The candidates admitted from 1st JUNE to 30th SEPTEMBER of the academic year shall be registered to take up their first semester examinations after fulfillment of the regulations concerned only in the month of April of the next year.

The candidates admitted from 1st JANUARY to 30th APRIL of the Academic year shall be registered to take their first semester examinations after fulfillment of the regulations in the month of November of that Academic year.

COMMENCEMENT OF THE EXAMINATION:

APRIL 15th / NOVEMBER 15th

If the date of commencement of Examination falls on Saturdays, Sundays or declared Public Holidays the examination shall begin on the next working day.

MEDIUM OF INSTRUCTION:

English shall be the Medium of Instruction for all the subjects of study and for examination of the Master of Physiotherapy Degree Course.

CURRICULUM:

The curriculum and the syllabi for the course shall be as prescribed by the Standing Academic Board from time to time as per the recommendations of the Board of studies in physiotherapy.

WORKING DAYS IN AN ACADEMIC YEAR:

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

ATTENDANCE REQUIRED FOR ADMISSION TO EXAMINATIONS:

- (a) No candidate shall be permitted to appear in any one of the parts of M.P.T degree examinations unless he or she has attended the course in the subjects for the prescribed period and produces the necessary certificate of study, attendance, satisfactory conduct and progress from the Head of the institution.
- (b) A candidate is required to put in a minimum of 80% of attendance in theory and 80% of attendance in clinicals separately in each subject.
- (c) A candidate lacking the prescribed attendance and progress in any one of the subjects in theory and clinicals in the first appearance shall not be permitted for admission to the entire examination.

CONDONATION OF LACK OF ATTENDANCE:

Condonation of shortage of attendance up to a maximum of 10% in the prescribed eligible attendance for admission to the university examination rests with the discretionary power of the Vice-Chancellor. For valid reasons, a candidate lacking in attendance may submit an application in the prescribed form and remit the stipulated fee 15 days prior to the commencement of the theory examination. The Head of the Department and Head of the Institution should satisfy themselves on the reasonableness of the candidate's request while forwarding the application with their endorsements to the Controller of Examination who would obtain the Vice-Chancellor's approval for admission of the candidate to the University examination.

RE – ADMISSION AFTER BREAK OF STUDY:

Candidates having a break of study of five years and more from the date of admission and more than two spells of break will not be considered for readmission.

Candidates having break of study shall be considered for readmission provided they are not subjected to any disciplinary action and so charges are pending or contemplated against him/her.

Readmission of candidates are subjected to the approval of the vice – chancellor (Deemed University).

MARKS QUALIFYING FOR PASS IN THE EXAMINATIONS:

- (a) 50% of marks in theory where university Examinations are conducted and 50% of the marks in oral examinations and 50% of aggregate of theory and orals put together.
- (b) A separate 50% of the marks in clinical examinations wherever applicable.
- (c) Candidate who has failed in any one subject or more subjects but has obtained pass marks in other subjects shall be exempted from reexamination in passed subjects

CLASSIFICATION OF SUCCESSFUL CANDIDATES:

Candidates who secure not less than 75% in aggregate in any subject gets distinction in that particular subject provided he/she passes the whole examination in the first attempt.

Candidates who pass the examination at the first appearance obtaining not less than 60% but below 75% of the aggregate marks shall be declared to have passed the examinations in the first class.

Candidates who pass the examination at the first appearance obtaining not less than 50% but below 60% of aggregate marks shall be declared to have passed the examination in the second class.

DISSERTATION:

Every candidate pursuing M.P.T degree course is required to carry out work on a selected research project under the guidance of a recognized post graduate teacher. The result of such a work shall be submitted in the form of dissertation.

The dissertation is aimed to train a graduate student in research methods and techniques. It includes identifications of a problem, formulation of a hypothesis, search and review of literature, getting acquainted with recent advances, designing a research study, collection of data, critical analysis, comparison of results and drawing conclusions.

Every candidate shall submit to the head of institution, a synopsis containing particulars of proposed dissertation work with in six months from the date of commencement of the course on or before the dates notified by the university.

Guidelines:

- I. The topic for dissertation should be related to the specific speciality selected for M.P.T programme.
- II. Dissertation should have word limit of 12,000 words. (10% either upper or lower is accepted)
- III. The return text of dissertation shall not be less than 50 pages and shall not exceed 100 pages excluding references, tables, questionnaires and other annexure. It should be neatly typed in double line spacing on one side of paper (A4 size, 8.27''* 11.69) and bound properly.
- IV. The guide should certify the dissertation.
- V. Four copies of dissertation thus prepared shall be submitted to the head of the institution three months before final examination on or before the dates notified by the university.

Approval of dissertation work is an essential pre condition for a candidate to appear in the final university examination.

GUIDE:

The academic qualification and teaching experience required for recognition by this university for post graduate teacher for guiding M.P.T candidates shall be :

- a) M.P.T / M.S.C (PT) with three years teaching experience.
- b) The age of teacher / guide shall not exceed 58 years.
- c) The guide student ratio shall be 1:3.
- d) Not withstanding above, in view of acute shortage of teachers the above mentioned criteria (a) can be relaxed.

EVALUATION / SCORING:

The dissertation work examination will be conducted by the university in a oral examination pattern with two physiotherapy examiners (One internal physiotherapy examiner & One external physiotherapy examiner)conducting the oral.

The student will be expected to present the dissertation work to the examiners and undergo the viva examination, discuss the cases study and also answer when questioned by the examiners. Dissertation – Approved / Not Approved

EXAMINATION PATTERN:

1ST YEAR

PAPER I : BASIC SCIENCES

PAPER II : BIO STATISTICS & RESEARCH METHODOLOGY

PAPER III : PHYSIOTHERAPEUTIC – I

PAPER IV : PHYSIOTHERAPEUTIC – II

2ND YEAR

PAPER V : ANATOMY, PHYSIOLOGY AND PATHOMECHANICS RELATED TO ELECTIVE

PAPER VI : CLINICAL CONDITIONS – ELECTIVE

PAPER VII : ASSESSMENT AND EVALUATION – ELECTIVE

PAPER VIII : PHYSIOTHERAPEUTIC INTERVENTION – ELECTIVE

All the papers carry 100 marks and the duration for the exam is 3 hours.

Dissertation has to be submitted 3 months prior to the commencement of the 2nd Year University examination. Dissertation -Approved/Not approved

Practicals & Viva

The practical & viva examinations shall be conducted in the following subjects only.

1st YEAR

PHYSIOTHERAPEUTIC – I – Practical – 100 marks and Orals – 50 marks

PHYSIOTHERAPEUTIC – II – Practical – 100 marks and Orals – 50 marks

2nd YEAR

PAPER VI : CLINICAL CONDITIONS – ELECTIVE - Orals – 50 marks

PAPER VII: ASSESMENT AND EVALUATION – ELECTIVE

Assesment & Evaluation - Elective

Practicals - 100 Marks

(Long case – 70 marks; time – 45 minutes)

(Short case – 30 marks; time – 20 minutes)

Orals - 50 Marks

PAPER VIII : PHYSIOTHERAPEUTIC INTERVENTION – ELECTIVE

Practicals - 100 Marks
(Long case – 70 marks; time – 45 minutes)
(Short case – 30 marks; time – 20 minutes)

Orals - 50 Marks

Dissertation – Presentation and Orals – 100 marks [50 marks for written work, 25 marks for presentation, 25 marks for orals]

Model Question Paper Pattern for Paper I

As the syllabus contains 4 different subjects in paper I [Basic Science],
In order to give weightage to all the 4 subjects, the following pattern is designed

Essay : 4 essays carrying 20 marks each	4 X 20 = 80
[One essay from each subject]	
4 short notes carrying 5 marks each	4 X 5 = 20
[One short note from each subject]	
	<hr/>
	100 marks
	<hr/>

Model Question Paper Pattern for Paper II

As the syllabus contains 2 different subjects in paper II [Biostatistics and
Research Methodology], In order to give weightage to both the subjects, the following
pattern is designed

Essay : 4 essays carrying 20 marks each	4 X 20 = 80
[Two essay from each subject]	
4 short notes carrying 5 marks each	4 X 5 = 20
[Two short note from each subject]	
	<hr/>
	100 marks
	<hr/>

Model Question Paper Pattern for Paper III, IV, VI, VII & VIII

Each Theory paper carries 100 marks. The division of marks is mentioned here
under :

Essay : 3 essays carrying 20 marks each	3 X 20 = 60
Short notes : 5 short notes carrying 8 marks each	5 X 8 = 40
	<hr/>
	100 marks
	<hr/>

Model Question Paper Pattern for Paper V:

As the syllabus contains 3 different subjects in paper V [Elective – Anatomy, Physiology, Pathomechanics], in order to give equal weightage to all the 3 subjects, the following pattern is designed

Essay : 3 Essays carrying 20 marks each	3X20=60
[One essay from each subject]	
5 short notes carrying 8 marks each	5X8=40
[Two short notes from Anatomy, two from Physiology and one from Pathomechanics]	

100 marks

SCHEME OF EXAMINATION

ACADEMIC YEAR - I

SL.NO.	PAPER	SUBJECT	Theory	Sessional marks	Practical	Oral	Total
1.	Paper I MPT 101	Basic sciences	100	50	-	-	150
2.	Paper II MPT 102	Bio-Statistics & Research Methodology	100	50	-	-	150
3.	Paper III MPT 103	Physiotherapeutic I	100	50	100	50	300
4.	Paper IV MPT 104	Physiotherapeutic II	100	50	100	50	300

ACADEMIC YEAR - II

SL.NO.	PAPER	SUBJECT	Theory	Practical	Oral	Total
1.	Paper V MPT 201	Anatomy, Physiology & Pathomechanics Related to Elective	100	-	-	100
2.	Paper VI MPT 202	Clinical Conditions – Elective	100	-	50	150
3.	Paper VII MPT 203	Assessment and Evaluation – Elective	100	100	50	250
4.	Paper VIII MPT 204	Physiotherapeutic Intervention – Elective	100	100	50	250
5.	MPT 205	Dissertation	APPROVED/NOT APPROVED			

I YEAR

TABLE – I

TEACHING HOURS

SL.NO.	PAPER	SUBJECT	Theory	Practical/ Clinical	Total
1.	I	* Basic Sciences	180 hrs.	95 hrs.	275 hrs.
2.	II	Biostatistics & Research methodology	100	-	100
3.	III	Physiotherapeutic I	75	75	150
4.	IV	Physiotherapeutic II	75	75	150
5.		** Journal Clubs, Seminars, Case presentation, Special clinics, Teaching, Field work etc.		175	175
6.		Dissertation		50	50
7.		Clinical Training		550	550
TOTAL					1475

II YEAR

TABLE – II

TEACHING HOURS

SL.NO.	PAPER	SUBJECT	Theory	Practical/ Clinical	Total
1.	V	* Elective Basics	100	50	150
2.	VI	Elective Clinical Conditions	100	50	150
3.	VII	Elective – Assessment and Evaluation	100	100	200
4.	VIII	Elective – Physiotherapeutic Intervention	100	100	200
5.		Dissertation		100	100
6.		** Journal Clubs, Seminars, Case presentation, Special clinics, Teaching, Field work etc.		175	175
7.		Clinical Training		550	550
TOTAL					1550

PAPER – I

BASIC SCIENCE

1. Biomechanics and Kinesiology / Pathomechanics
2. P.T. Education & Practice and Education technology
3. Work Physiology / Ergonomics
4. Ethics

BIOMECHANICS AND KINESIOLOGY / PATHOMECHANICS

UNIT - I

Introduction to Biomechanics - Force, moment, vectors, stress, torsion, principles of mechanics, Leverage, equilibrium gravitational forces. Centre of gravity of human body. Basic movement terminology, anatomical movement description joint movement characteristics.

UNIT - II

Skeletal, muscular, and neurological considerations for Human motion.

UNIT - III

Mechanical analysis of human motion of Upper extremity ,Lower extremity and Trunk movements.

UNIT - IV

Pathomechanics of paralytic shoulder, elbow, wrist and hand.

UNIT - V

Pathomechanics of paralytic disabilities and static deformities of upper limb and lower limb and Trunk.

PT EDUCATION AND PRACTICE / EDUCATION TECHNOLOGY

UNIT – I PT Department Management

Policies and procedure recruitment , interview, orientation probationary period, salary hours of work, leave facilities, retirement , referred policy, equipment maintenance records, statistics functioning, innovation, growth and expansion type and size of hospital, service and activities, Space requirements, number of functional area elements, occupancy time gymnasium, patient waiting areas, storage facilities, lighting floor surfaces.

UNIT – II Physical Therapy and Law

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

UNIT – III Education

Aims, philosophy and trends and issues in education including :

1. Educational aims
2. Agencies of education
3. Formal and informal education
4. Psychology of education
5. Major philosophies of education (naturalism, idealism, pragmatism, realism) including Gandhi and Tagore.
6. Modern and contemporary philosophies of education (existentialism, progressivism, reconstructionism, perennialism)
Philosophies of education in India – past, present and future.
Role of educational philosophy
Current issues and trends in education

UNIT – IV Concepts of teaching and learning

1. Theories of teaching
2. Relationship between teaching and learning
3. Dynamics of behavior, motivational process, of learning perception, individual differences, intelligence personality.

UNIT – V Curriculum

1. Curriculum committee
2. Development of a curriculum for PT
3. Types of curriculum,
4. Formation of philosophy, Objectives, Course objectives.
5. Placing, course placement, time allotment.
6. Selection and organization of learning experience
7. Master plans of courses
8. Master rotational plan – individual rotational plan
9. Correlation of theory and practise.
10. Hospital and community areas for clinical instruction

11. Clinical assignments
12. Current trends and curriculum planning.

UNIT - VI Principles and methods of teaching

1. Strategies of teaching
2. Planning of teaching
3. Organization, writing lesson plans
4. A.U. aids
5. Teaching methods – socialized teaching methods.

UNIT – VII Measurement and Evaluation

1. Nature of Measurement of education, meaning, process, personnel, standardized, non standardized tests.
2. Steps of constructing a test , measurement of cognitive domain, assessment techniques of affective, psychomotor domains, administering scanning and reporting.
3. Standardised tools, important tests of intelligences, aptitude, instrument, personality, achievement and sestatus scale.
4. Programme evaluation.
5. Cummulative evaluation

UNIT – VIII Guidance and counseling

1. Philosophy, principles and concepts, guidance and counseling services of students and faculty.

UNIT – IX

Faculty development and development of personnel for PT services.

PRACTICALS

- 1) Prepare a philosophy, overall and behavioural objectives for a basic PT progamme.
- 2) Design a curriculum for a Basic PT programme.
- 3) Plan a unit of instruction for a course in a selected speciality of PT
- 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 methods of teaching

Lectures

Seminars- Discussion

WORK PHYSIOLOGY / ERGONOMICS

UNIT - I Energy Systems

Description of concepts of energy and energy transfer role in various forms of biological work.

UNIT - II

Classification of work, Factors affecting sustained Physical work. Assessment of work load in relation to work capacity.

UNIT - III Energy Expenditure

Measurement of human energy expenditure

- 1) The basic methods interpretation and equipment
- 2) Energy metabolism : Estimation of BMR
- 3) Energy cost during moderate, severe activities in terms of daily activities.
- 4) Specific forms of exercises including sporting activity

UNIT - IV Ergonomics

Work capacity analysis, role of physiotherapy in industrial setup, 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.

ETHICS

- 1) Morals and ethics, ethical analysis of moral problems, ethical issue in physical therapy
- 2) Rules and regulations of Indians Association of Physiotherapists ethical rules, aims and objectives of IAP

Reference :

1. Biomechanical basis of human movement – Joe Hamill and Knutsen
Publisher – Williams and Wilkins
2. Brunstron Clinical kinesiology – Laura K.Myth et el. Publishers-F.A.Davis
3. Joint Structure and Function – Cynthia C.Nor Kin et el. Publishers -F.A.Davis
4. Samson Wright’s Applied Physiology- Cyril A.Keele, Eric Neil and Norman Joels.
5. Axen: Illustrated Principles of exercise physiology
6. Katch: exercise physiology, energy nutrition, and human performance
7. Frank: exercise physiology for health care professionals
8. Clark, T.S. The Ergonomics of workspace and Machines : a design manual
Taylor and Francis
9. Corlett, N.and Wilson, J., The Ergonomics of working Postures, Taylor-Francis.
10. Contemporary Ergonomics Taylor and Francis
11. Kinesiology & Pathomechanics – Gary L. Soderberg
12. Kinesiology – Steindler
13. Teaching for Physiotherapists – Katherine F. Shepherd
14. Medical Education – Principles and Practice – Narayanan
15. Expertise in Physical therapy Practice-
16. Physical Therapy – Rose Mary Scully
17. Work Physiology – Astrand

PAPER – II

BIOSTATISTICS & RESEARCH METHODOLOGY

BIOSTATISTICS:

OBJECTIVES:

- Distinguish between quantitative and qualitative variables.
 - Know how to summarize information using mean, median, standard deviation, quartiles and interquartile range.
 - Understand the key concepts of probability.
 - Know when and how to use the binomial distribution.
 - Understand the central limit theorem.
 - Know when and how to use t-distribution.
 - Calculate and interpret confidence intervals.
 - Understand the meaning of P-values in significance testing.
 - Learn use of chi square test.
 - Calculating and interpreting a correlation coefficient
 - Understand the concept of regression.
1. Introduction to statistics
 2. Exploratory tools for univariate data:
 - Types of variables: quantitative and qualitative variables
 - Simple plots for continuous variables – dot plots, stem and leaf plots, histograms, interpreting plots
 - Numerical summarizes for continuous variables – Mean, Mode, and Standard deviation, quartiles, percentiles interquartiles range.
 - Frequency tables.
 - Various types of graphs, obtaining graphs using statistical software's like Excel, Minitab, 5 plus, & SPSS.

3. Probabilities and proportion.
 - Introduction to probability and proportions
4. Discrete random variables
 - Binomial distribution
 - Expected value for the mean and standard deviation
5. Continuous random variables: -
 - Normal distribution, Z score
 - Obtaining normal distribution probabilities from tabular and statistical software's.
6. Sampling distribution of estimates: -
 - Parameters and estimates
 - Sampling distribution of sample proportions
 - Standard errors of differences
 - Student's t-distribution
7. Confidence intervals: -
 - Confidence intervals for mean
 - Confidence intervals for proportions
 - Confidence intervals for difference between mean
 - Confidence intervals for difference between proportions
 - Obtaining confidence intervals using statistical software like excel, minitab, 5 plus
8. Significance testing: -
 - Difference between tests and intervals
 - Types of Hypothesis – Research hypothesis, Null hypothesis, - t tests and P values.
 - Distinction between statistical and clinical significance.
9. Tables of counts: -
 - One-dimensional tables: - Chi-square test for goodness of fit, tables for the chi-square distribution.
 - Two-way tables of counts – chi-square test of homogeneity chi square test of independence, 2 X 2 table, validity of chi square tests.
 - Performing chi square test using statistical software like Excel, Minitab, spss
10. Data on a continuous variable:
 - One way analysis of variance and the f-test
 - The f-test and analysis of variance table
11. Relationship between quantitative variables: Regression and correlation: -
 - Correlation versus regression
 - Relationship modeling: The straight line, exponential curve.
 - Inference for the simple linear model – Inferences about slope and intercept, regression model and prediction, model checking.
 - Correlation and association: Two regression lines, correlation coefficient.

RESEARCH METHODOLOGY

OBJECTIVES:

- To become familiar with the importance of Research in Physiotherapy.
- To understand the conceptual, empirical and interpretive phases of research.
- To develop the skill needed to read published research critically.
- To develop the skills to conduct research.
- To develop the skills to write research reports.

INTRODUCTION TO RESEARCH

- The importance of Research in Physiotherapy. Physiotherapy Research: Past, Present and Future. Paradigms: The positivist paradigm and the naturalistic paradigm.
- Ethical considerations in Physiotherapy Research.

CONCEPTUAL PHASE

1. Formulation of the problem:

- Basic terms relating to research problems.
- Development and refinement of Research problems.
- Communicating the Research problem, purpose and questions.

2. Concepts and variables: Phenomena, concepts and constructs

- Theory Variables: Dependent variables and independent variables, operations definitions of variables.

3. Literature Review and theoretical basis:

- Purpose and use of literature review. Locating relevant literature for a review: use of electronic databases like Medicine, CINAHL, and ALT HEALTHWATCH etc. Preparing written literature reviews.
- Theories, models and frameworks.

4. Hypothesis: Function of hypothesis in quantitative research.

- Types of Hypothesis. Characteristics of testable hypothesis.
- Wording of the Hypothesis. Brief introduction to Hypothesis testing.

EMPIRICAL / CONDUCTING PHASE

1. Research Design:

- Quantitative Research designs: Experimental Research: Characteristics of Experiments, Basic designs, factorial design, repeated measures design, advantages and disadvantages of experiments.
- Quasi Experiments Research: Non equivalent control group design, time series design, advantages and disadvantages of quasi experiments
- Non experimental

2. Research: Co relational Research, Advantages and disadvantages of non-experimental research.

- Research design and the time dimension: Cross-sectional designs, longitudinal designs.
- Specific types of quantitative Research: Surveys, Evaluations, and outcomes research.
- Techniques of research control.
- What is Research control? Controlling extrinsic and intrinsic factors
- Qualitative Research designs: Distinction between quantitative and qualitative designs.
- Qualitative Research traditions: Brief overview of Ethnography, Phenomenology and grounded theory.
- Brief overview of qualitative and quantitative approaches.

3. Population and sample:

Populations: Target population, accessible population.

- Sampling rationale.
- Non-probability sampling: Convenience sampling, quota sampling, purposive sampling, advantages and disadvantages of nonprobability sampling.
- Probability sampling: Simple random sampling, stratified random sampling, cluster sampling, systematic sampling, advantages and disadvantages of probability sampling.
- Sample size in quantitative studies.
- Sampling in qualitative research – logic types and size.

4. Internal and External Validity in quantitative research:

- What is internal validity?

Threats to interval validity: History, selection maturation, mortality, testing, and instrumentation.

- What is external validity?

Threats to external validity: Hawthorne effect. Experimenter and measurement effects, novelty effect.

5. Collection of data:

- Data collection methods: Self-Reports: Interviews, questionnaires, scales, advantages and disadvantages of self report methods.
- Observational methods – structured and unstructured observational methods, advantages and disadvantages of observational methods.
- Bio-physiologic measures: In vivo measures, in vitro measures, advantages and disadvantages of Bio-physiologic measures.
- Measurement and assessment of quantitative data:-
- Measurement: Errors of measurement.
- Readability of measuring instruments: stability, internal consistency, and equivalence.
- Validity of measuring instruments: content validity, criterion related validity, construct validity.
- Assessment of qualitative data: Credibility: Prolonged engagement and persistent observation, triangulation, peer debriefing and member checks, searching for disconfirming evidence.
- Dependability
- Conformability
- Transferability

6. Research data and Analysis:

- Analysis of quantitative data: Descriptive statistics: Frequency distributions, central tendency, variability, bivariate descriptive statistics – contingency table and correlation.
- Inferential statistics:- Sampling distributions hypothesis testing, type I and II errors, level of significance, statistical significance, parametric and Nonparametric tests, t-tests, ANOVA, chi squared test, correlation coefficient, regression, ANCOVA.

Note:

In this part of the course, the emphasis will be on application and interpretation of the tests rather than computation.

Analysis of qualitative data: General consideration is qualitative analysis.

- Qualitative data management and organization – categorization, coding.
- Overview of grounded theory analysis, phenomenological analysis.

INTERPRETIVE PHASE

Discussion and conclusions: Interpreting quantitative results: Interpreting hypothesized significant results, interpreting non-significant results, interpreting un hypothesized significant results, interpreting mixed results.

- Interpreting qualitative results.

CRITIQUING PUBLISHED RESEARCH

- Need for critiquing research
- Guidelines for critiquing research

WRITING RESEARCH FOR PUBLICATION

- Guidelines for writing research – Title, Abstract, introduction, literature review, methodology, results, discussion, referencing documenting and structuring papers in social sciences using the American Psychological Association (APA) style guide (can be downloaded from <http://www.apastyleguide.org> Plagiarism and copyright laws.

Reference:

- Carolin hicks research for physiotherapist
- Methods in Biostatistics B.K.Mahajan
- John: statistics a guide for therapists
- Jan: basic statistics for health care research
- Barbara: statistical methods for healthcare research
- Darlene: documenting functional outcomes in physical therapy
- Diana: research for health professionals
- Mitchell: clinical research for health professionals
- Research for physiotherapist - Domholdt

PAPER - III

PHYSIOTHERAPEUTIC - I

[Electrotherapy and its recent advances including Electro Physiology]

ELECTROTHERAPY AND ITS RECENT ADVANCES:

At Masters level, student should have in depth knowledge of the Electrotherapy modalities, their configurations, instrumentation, and the principles on which the machine works [physics], the clinical implications [Selection of dosage, techniques, indications, contraindications, method of application, precautions, advantages, disadvantages, dangers therapeutic effects, physiological effects, uses] and sound rationale for selecting a particular modality in a specific condition, able to justify how the modality selected is suitable for the particular condition.

- Additionally, student should update with the latest development with regard to Electro modality by critically reviewing the journals.

[In practical and orals, a candidate will be asked questions with regard to recent advances and evidence that he/she has reviewed the journals. In orals, examiner should have discussions, with regard to recent advances].

Short Wave Diathermy – Pulsed and Continuous.

Microwave Diathermy – Pulsed and Continuous.

Ultrasonic Therapy.

Ultraviolet Therapy.

Infrared radiation.

Laser Therapy.

Paraffin Wax Bath.

Cryotherapy

Moist heat therapy.

Contrasts bath.

Electronic Traction.

Iontophoresis

Interferential Therapy.

Trancutaneous Electrical Nerve Stimulation.

Electrical Stimulation – Faradic, Galvanic.

Dynamic currents.

Continuous Passive Motion.

Fluid therapy.

Electro Myo Gram.

Biofeedback.

ELECTRO PHYSIOLOGY

- Excitable tissue – Nerve
 - Excitation and conduction
 - Measurement of electrical events.
 - Ionic basis of excitation and conduction.
 - Physiologic basis of nerve conduction tests.

 - Excitable tissue – Muscle
 1. Skeletal Muscle: Electrical phenomena and ionic fluxes, contractile responses, physiological basis of Electro myo gram [EMG].
 2. Cardiac Muscle: Electrical properties, Electro cardio gram [ECG], and physiological basis of ECG.
 3. Smooth Muscle: Electrical properties.

 - Electrical events at synapse, chemical transmission of synaptic activity.
 - Electrical and ionic events in receptors.
 - Electrical activity of the brain.
 - Electro Encephalo Gram [EEG] – Physiological basis.
 - Physiology of Pain.
-
1. History of clinical neurophysiology
 2. An introduction to electro diagnostic signals and their measurements.
 3. Nerve conduction study

Principles of nerve conduction study

Median nerve

Ulna nerve

Radial nerve

Brachial plexus

Cervical radiculopathy

Lumbar plexus and its terminal branches

Sacral plexus and its terminal branches

Lumbosacral Radiculopathy

Anomalous innervations of the extremities

Nerve conduction of nonlimb nerves

Late responses

Autonomic nervous system testing

4. Electromyography
 - Introduction to electromyography
 - Technique of electromyography
5. Clinical application of electromyography and nerve conduction
 - Electromyographic findings in neurological disorders
 - Nerve conduction and EMG studies in polyneuropathic
6. Repetitive nerve stimulation
7. Single fibre and macro electromyography
8. Visual evoked potential
9. Brainstem auditory evoked potential
10. Somato-sensory evoked potentials
11. Motor evoked potentials

Reference:

- Low and reed: Electrotherapy explained
- Nelson: clinical electrotherapy
- Claytons: electrotherapy
- Kimura: electro diagnosis in disease of nerve and muscle.
- Kerb: Bio feedback
- Joseph khan: Electrotherapy explained
- Mellzack and wall: Text book of pain
- Prentice: Therapeutic modalities and sports medicine
- Bernadette: Physical agents a comprehensive text for physical therapists.
- Electrotherapy – Cameroon
- Physical Agents – Michlovitz
- Thermal Agents - Michlovitz

PAPER - IV

PHYSIOTHERAPEUTIC - II

[Exercise therapy and its recent advances including Exercise Physiology]

EXERCISE THERAPY AND ITS RECENT ADVANCES:

At Masters level, student should have in depth knowledge of the Exercise therapy. The use of exercises in various population group and sound rationales for selecting a particular condition. The effect and use of exercise.

Additionally, student should update with the latest development with regard to Exercise Therapy by critically reviewing the journals.

[In practical and orals, a candidate will be asked questions with regard to recent advances and evidence that he/she has reviewed the journals. In orals, examiners should have discussions with regard to recent advances].

1. Starting positions, derived positions.
2. Movements – Passive [Relaxed Passive movements, Mobilization techniques, Manipulation techniques of Upper extremity, lower extremity and spine], active movements.
3. Resisted exercises – progressive resisted exercises
4. Aerobic and anaerobic exercises
5. Manual muscle testing
6. Joint Mobility
7. Goniometry
8. Suspension
9. Mobility aids
10. Relaxation techniques
11. Functional re-education, Transfer techniques
12. Proprioceptive neuromuscular facilitation
13. Swiss Balls / Physio Balls
14. Gait training
15. Posture
16. Strengthening techniques
17. Endurance techniques
18. Power
19. Isometric, isotonic exercises for the whole body
20. Stretching techniques
21. Hydrotherapy
22. Breathing exercises including postural drainage
23. Exercise Therapy – Equipment:
 - a. Shoulder wheel, ladder, Shoulder mobiliser, Shoulder pulleys [overhead, over door, wall mounted], Elbow mobiliser, pronation-supination board, Supination pronation

coordinator, Wrist mobiliser, Hand dynamometer, Pinch dynamometer, wrist circumductor, hand gym board for fingers and thumb.

- b. Multiple exerciser
- c. Cycle Ergo meter
- d. Tread mill – Computerized, Motorized, Manual
- e. Stepper
- f. Twister
- g. Ramp for gait training, stair case training
- h. Rowing machine
- i. Thera bands
- j. Pedo cycle
- k. Tilting table
- l. Peg board
- m. Re-education board
- n. Quadriceps board
- o. Multi purpose Cervical Chair

24. CBR and Disability Evaluation

The student should be acquainted with the above mentioned exercise therapy equipment and any other latest equipment developed.

EXERCISE PHYSIOLOGY:

1. Nutrition:
 - a) The bases for human performance
 - b) Carbohydrates
 - c) Lipids & proteins
 - d) Vitamins
 - e) Minerals and water
 - f) Optimal nutrition for exercise

2. Energy for physical activity:
 - a) Energy value of food
 - b) Introduction to energy transfer, energy transfer in the body – phosphate bond energy, energy released from food
 - c) Energy transfer in exercise
 - d) Measurement of Human energy expenditure
 - e) Human energy expenditure during rest and physical activity
 - f) Energy expenditure during walking, jogging, running, and swimming
 - g) Individual differences and measurement of energy capacities.

3. System of energy delivery and utilization: The cardiovascular system, cardiovascular regulation and integration, functional capacity of cardiovascular system.

4. Dynamics of pulmonary ventilation: Regulation of pulmonary ventilation, pulmonary ventilation during exercise, acid-base regulation.

5. The endocrine system: Organization, acute and chronic response to exercise.

6. Enhancement of energy capacity:
 - a) Training for anaerobic and aerobic power
 - b) Muscular strength: Training muscles to become stronger – Strength measurement and resistance training, Structural and functional adaptations to resistance training.
 - c) Special aids to exercise training and performance.

7. Exercise performance and environmental stress
 - a) Exercise at medium and high altitude
 - b) Exercise and thermal stress –Mechanism of thermo regulation, Thermoregulation and environmental stress during exercise.

- c) Sport diving
 - d) Micro gravity: the cost frontier.
8. Body composition, energy balance and weight control
 9. Body composition assessment, physique, performance, and physical activity, over weight, obesity and weight control.
 10. Exercise, successful aging and disease prevention.
 11. Physical activity, health, aging.
 - a) Physical activity in the population
 - b) Aging and physiologic function
 - c) Physical activity, health and longevity
 - d) Coronary heart disease
 12. Clinical exercise physiology for cancer, cardiovascular and pulmonary Rehabilitation.

Reference:

- Axen: Illustrated Principles of exercise physiology
- Katch: exercise physiology, energy nutrition, and human performance
- Frank: exercise physiology for health care professionals
- Kisner: therapeutic exercise foundation & technique
- Dena gardener: exercise therapy
- Basmajian: therapeutic exercises
- Kaltenbore: Mobilization of joints
- Brunnstorm: movement therapy
- Lamb: Physiology of exercises
- Exercise Physiology – Powers
- Therapeutic Exercise – Wall/Bates

ELECTIVES

MPT IN ORTHOPAEDICS

PAPER – V

ANATOMY AND PHYSIOLOGY AND PATHOMECHANICS

1. Embryological development of musculoskeletal system.
2. Osteology: Structure of bone, ossification of bones, Skull bones, Facial bones, Bones of Upper Extremity, Lower Extremity, Pelvis, Vertebral Column, ribs
3. Myology: Structure of muscles, Types of muscle, muscle fibers, Origin, insertion, action, nerve supply of Muscles of Face, Upper Extremity, Lower Extremity, Trunk.
4. Arthrology: Structure of joint, types of joints detailed structure and formation of all the joints. Neurobiology of joint
5. Neurology: Peripheral Nerves; Dermatomes and myotomes.
Physiology: Joint physiology [Movements], muscle physiology.
Pathomechanics of Fractures, deformed joints.

MPT IN ORTHOPAEDICS
PAPER - VI
CLINICAL CONDITIONS

Causes, Clinical Features, pathophysiology, general investigation [blood test, serum, creatinine, etc], Medical and surgical management of the below mentioned conditions:

1. Fractures and dislocations
 - A) Upper Limb: Fracture of clavicle, scapula, humerus, forearm bones, carpal bones, metacarpal bones, and phalanx. Shoulder dislocation, elbow dislocation, dislocation of radius, dislocation of radio-ulnar joint, dislocation of carpometacarpal joint of thumb.
 - B) Lower Limb: Fracture of Pelvis, femur, patella, tibia, fibula, tarsal Bones, metatarsal, and phalanx. Dislocation of hip, patella, knee, ankle, Subtalar joint.
 - C) Spine: Fractures and dislocation / subluxation of vertebrae.
 - D) Skull Bones and Ribs
(With emphasis made to Post traumatic complications & preventive measures)
2. Amputation.
3. Sprains and Strains: Injuries of soft tissue of body.
4. Disease of joints:
Infective, Rheumatoid, Degenerative, Neuropathic, Metabolic, Arthritis in systemic disorders, Miscellaneous, Periarthritis, juvenile rheumatoid arthritis.
5. Deformities: of Upper Limb, lower limb and spine.
6. Plexus and peripheral nerve injuries.
7. Arthropathies: Spondylitis, spondylolesthesis, Spondylitis, ankylosing Spondylitis.
8. Metabolic diseases of bones, Osteopenia, Rickets, Osteomalacia, Osteoporosis.
9. Tumors of bones and joints.
10. Infectious disorders of bones and joints.
11. Congenital disorders.

12. Developmental disorders bones.
13. Bony Abnormalities secondary to endocrine disorders.
14. Avascular necrosis of bone and epiphyseal osteochondritis.
15. Disorders of bone & joint secondary to neurological conditions – like: -
Cerebral palsy, anterior poliomyelitis, Leprosy, Spinal cord injuries.
16. Disorders of bone & joint secondary to Muscular Dystrophies,
Arthrogryposis Multiplex Congenita, Fibro dysplasia parogressiva.
17. Regional conditions of neck and upper limb
Brachial neuralgia, Cervical rib, Thoracic outlet syndrome Torticollis,
Supraspinatus Syndrome, Rupture of rotator cuff, Deltoid fibrosis,
Tennis elbow, Ganglion, Dequervain's disease, Trigger finger, Trigger
thumb, Carpal tunnel syndrome, Deputrens contracture.
18. Regional conditions of spine & lower limb.
Back ache, Lumbo sacral strain, Fibrositis Back, Sacralistion of 5th
lumbar vertebra, IVDP, Lumbar canal stenosis, Epiphyseolysis,
Idiopathic chondrolysis of hip, Quadiceps fibrosis, Bursitis around the
knee, Loose bodies in the knee, Chondromalacia patella, plantar facitis,
Calcaneal spur, Osgood Schlatter disease, Tarsal tunnel syndrome.
19. Miscellaneous
Perthes disease, Paget's disease, Connective tissue disorders (SLE,
polymyositis, dermatomyositis, polyarteritis nodosa.
20. Bone, skin grafting / tendon transfer procedures
The student should know the latest advances in orthopaedic surgical
procedures.

MPT IN ORTHOPAEDICS
PAPER - VII
ASSESSMENT & EVALUATION

Principles and Concepts

Patient History, Observation

Examination.

Principles, Scanning examination, Examination of specific joints, Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, Diagnostic Imaging.

Rationale in Musculo skeletal and clinical reasoning.

1. Head and Face

Patient History, Observation

Examination

Examination of the Head, Examination of the Face, Examination of the Eye, Examination of the Nose, Examination of the Teeth, Examination of the Ear, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, Diagnostic Imaging.

2. Cervical spine

Patient History, Observation

Examination

Active movements, Passive movements, Resisted Isometric Movements, Peripheral Joint Scanning Examination, Myotomes, Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, Diagnostic Imaging.

3. Temporomandibular Joint

Patient History, Observation

Examination

Active movements, Passive movements, Resisted Isometric Movements, Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, and Diagnostic Imaging.

4. Shoulder

Patient History, Observation

Examination

Active movements, Passive movements, Resisted Isometric Movements, Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, and Diagnostic Imaging.

5. Elbow

Patient History, Observation

Examination

Active movements, Passive movements, Resisted Isometric Movements, Functional Assessments, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, and Diagnostic Imaging.

6. Forearm, Wrist and Hand

Patient History, Observation

Common Hand and Finger Deformities

Other physical Findings

Examination

Active movements, Passive movements, Resisted Isometric Movements, Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, and Diagnostic Imaging.

7. Thoracic (Dorsal) Spine

Patient History, Observation,

Kyphosis, Scoliosis, Breathing, Chest Deformities.

Examination

Active movements, Passive movements, Resisted Isometric Movements, Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, and Diagnostic Imaging.

8. Lumbar Spine

Patient History, Observation

Examination

Active movements, Passive movements, Resisted Isometric Movements, Peripheral Joint Scanning Examination, Myotomes, Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, and Diagnostic Imaging.

9. Pelvis
Patient History, Observation,
Examination
Active movements, Passive movements, Resisted Isometric Movements, Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, and Diagnostic Imaging.

10. Hip
Patient History, Observation,
Examination
Active movements, Passive movements, Resisted Isometric Movements, Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, and Diagnostic Imaging.

11. Knee
Patient History, Observation
Examination
Active movements, Passive movements, Resisted Isometric Movements, Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, and Diagnostic Imaging.

12. Lower Leg, Ankle and Foot
Patient History, Observation
Examination
Active movements, Passive movements, Resisted Isometric Movements, Functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, and Diagnostic Imaging.

13. Assessment of Gait
Normal Patterns of Gait
Stances Phase, Swing Phase, Joint motion during normal gait
Normal Parameters of Gait
Base width, Step length, Stride length, Lateral pelvic shift, Vertical pelvic shift, Pelvic rotation, Center of gravity, Normal cadence.

Overview and patient History

Observation

Foot Wear

Examination

Location score, Compensatory Mechanisms

Abnormal Gait

Antalgic (painful) Gait, Arthrogenic (stiff Hip or Knee) Gait, Ataxic Gait, Contracture Gaits, Equinus Gait, Gluteus Maximus Gait, Gluteus Medius (Trendelenburg's) Gait, Hemiplegics or Hemi paretic Gait, Parkinsonian Gait, Plantar flexor Gait, Psoatic limp, Quadriceps Gait, Scissors Gait, Short Leg Gait, Steppage or Drop Foot Gait.

14. Assessment of Posture

Postural development

Factors affecting posture, Causes of poor posture

Common spinal Deformities

Lordosis, Kyphosis, Scoliosis

Patient History

Observation

Standing, Forward Flexion, Sitting, Supine Lying, Prone Lying

Examination

15. Assessment of the Amputee

Levels of amputation

Patient History, Observation,

Examination

Measurement related to Amputation

Active movements, Passive movements, Resisted Isometric Movements, Functional Assessment, Sensation Testing, Psychological Testing, Palpation, Diagnostic Imaging.

16. Assessment & evaluation of pain

Apart from the above student is expected to learn assessment and evaluation in the following clinical conditions (Pre operative & Post operative).

CLINICAL CONDITIONS

- a. Fractures and dislocations
 - i. Upper Limb: Fracture of clavicle, scapula, humerus, forearm bones, carpal bones, metacarpal bones, and phalanx. Shoulder dislocation, elbow dislocation, dislocation of radius, dislocation of radio-ulnar joint, dislocation of carpometacarpal joint of thumb.
 - ii. Lower Limb: Fracture of Pelvis, femur, patella, tibia, fibula, tarsal bones, metatarsal, and phalanx. Dislocation of hip, patella, knee, ankle, subtalar joint.
 - iii. Spine: Fractures and dislocation / subluxation of vertebrae.
 - iv. Skull Bones and Ribs.
(With emphasis made to Post traumatic complications & preventive measures)
- b. Amputation.
- c. Sprains and Strains, Injuries of soft tissue of body.
- d. Disease of joints:
Infective, Rheumatoid, Degenerative, Neuropathic, Metabolic,
Arthritis in Systemic disorders, Miscellaneous, Periarthritis.
- e. Deformities: of Upper limb, lower limb and spine.
- f. Plexus and peripheral nerve injuries.
- g. Arthropathies: Spondylitis, Spondylolesthesis, Spondylosis, ankylosing Spondylitis.
- h. Metabolic diseases of bones, Osteopenia, Rickets, Osteomalacia, Osteoporosis.
- i. Tumors of bones and joints.
- j. Infectious disorders of bones and joints.
- k. Congenital disorders.
- l. Developmental disorders bones.
- m. Bony Abnormalities secondary to endocrine disorders.
- n. Avascular necrosis of bones and epiphyseal osteochondritis.

- o. Disorders of bone & joint secondary to neurological conditions like Cerebral palsy, anterior poliomyelitis, Leprosy, spinal cord injuries.
- p. Disorders of bone & joint secondary to Muscular Dystrophies, Arthrogryposis Multiplex Congenita, Fibro dysplasia progressiva.
- q. Regional conditions of neck and upper limb.
 - Brachial neuralgia, Cervical rib, Thoracic outlet syndrome, Torticollis, Supraspinatus Syndromes, Rupture of rotator cuff, Deltoid fibrosis, Tennis elbow, Ganglion, Dequervain's disease, Trigger finger, Trigger thumb, Carpal tunnel syndrome, Dupuytren's contracture.
- r. Regional conditions of spine & lower limb
 - Back ache, Lumbo sacral strain, Fibrositis Back, Sacralisation of 5th lumbar vertebra, IVDP, Lumbar canal stenosis, Epiphyseolysis, Idiopathic chondrolysis of hip, Quadriceps fibrosis, Bursitis around the knee, Loose bodies in the knee, Chondromalacia patella, plantar fasciitis, Calcaneal spur, Osgood Schlatter disease, Tarsal tunnel syndrome.
- s. Miscellaneous
 - Perthes disease, Paget's disease, Connective tissue disorders (SLE, polymyositis, dermatomyositis, polyarteritis nodosa).
- t. Bone, skin grafting / tendon transfer procedures
 - A student is expected to learn the latest developments in the assessment and evaluation protocols used in orthopedic physiotherapy.

MPT IN ORTHOPAEDICS

PAPER - VII

PHYSIOTHERAPY INTERVENTIONS

Student should learn the Physiotherapy interventions and recent advances in the Physiotherapy management of following conditions.

(Preoperative & Postoperative)

CLINICAL CONDITIONS

- i. Fractures and dislocations
 1. Upper Limb: Fracture of clavicle, scapula, humerus, forearm bones, carpal bones, metacarpal bones, and phalanx. Shoulder dislocation, elbow dislocation, dislocation of radius, dislocation of radio-ulnar joint, dislocation of carpometacarpal joint of thumb.
 2. Lower Limb: Fracture of Pelvis, femur, patella, tibia, fibula, tarsal bones, metatarsal, and phalanx. Dislocation of hip, patella, knee, ankle, subtalar joint.
 3. Spine: Fractures and dislocation / subluxation of vertebrae.
 4. Skull Bones and Ribs.
(With emphasis made to Post traumatic complications & preventive measures).
- ii. Amputation.
- iii. Sprains and Strains: Injuries of soft tissue of body.
- iv. Disease of joints:
Infective, Rheumatoid, Degenerative, Neuropathic, Metabolic, Arthritis in systemic disorders, Miscellaneous, Periarthritis.
- v. Deformities: of Upper Limb, Lower Limb and spine.

- vi. Plexus and peripheral nerve injuries.
- vii. Arthropathies: Spondylitis, Spondylolesthesis, Spondylosis, ankylosing Spondylitis.
- viii. Metabolic disease of bones, Osteopenia, Rickets, Osteomalacia, Osteoporosis.
- ix. Tumors of bones and joints.
- x. Infectious disorders of bones and joints.
- xi. Congenital disorders.
- xii. Developmental disorders bones.
- xiii. Bony Abnormalities secondary to endocrine disorders.
- xiv. Avascular necrosis of bone and epiphyseal osteochondritis.
- xv. Disorders of bone & joint secondary to neurological conditions like Cerebral palsy, anterior poliomyelitis, Leprosy, spinal cord injuries.
- xvi. Disorders of bone & joint secondary to Muscular Dystrophies, Arthrogryposis Multiplex Congenita, Fibro dysplasia progressiva.
- xvii. Regional conditions of neck and upper limb
Brachial neuralgia, Cervical rib, Thoracic outlet syndrome, Torticollis, Supraspinatus Syndromes, Rupture of rotator cuff, Deltoid fibrosis, Tennis elbow, Ganglion, Dequervain's disease, Trigger finger, Trigger thumb, Carpal tunnel syndrome, Deputrens contracture.
- xviii. Regional conditions of spine & lower limb
Back ache, Lumbo sacral strain, Fibrositis Back, Sacralistion of 5th lumbar vertebra, IVDP, Lumbar canal stenosis, Epiphyseolysis, Idiopathic chondrolysis of hip, Quadriceps fibrosis, Bursitis around the knee, Loose bodies in the knee, Chondromalacia patella, plantar facitis, Calcaneal spur, Osgood Schlatter disease, Tarsal tunnel syndrome.

- xix. Miscellaneous
Perthes disease, Paget's disease, Connective tissue disorders (SLE, polymyositis, dermatomyositis, polyarteritis nodosa).
- xx. Bone, skin grafting / tendon transfer procedures
Burns complications and physiotherapeutic interventions.
Physiotherapeutic interventions for relief of pain.
- xxi. Manual Therapy:
Principles, Concepts, Indications, Contraindications, Applications & Techniques(All concepts and techniques included).

Apart from the above student should learn - orthotics & prosthetics, spinal braces & corsets.

Reference:

- Goodman: Pathology implications for the physical therapist,
- Barbara: Muscles, nerves and movements kinesiology in daily living,
- Karen: Physiotherapy in orthopedics,
- Loth: Orthopedic review for physical therapist,
- Malone: Orthopedic and sports physical therapy,
- Brent Brotzman: Clinical orthopedic rehabilitation,
- Magee: Orthopedic physical assessment,
- Konin: Special tests for orthopedic examination,
- Loudon: Clinical orthopedic assessment guide,
- Reider: The orthopedic physical examination,
- Carol: Hematological physiotherapy,
- Joan: Physical therapy in arthritis,
- Frederic: Rheumatoid arthritis,
- John: An atlas of radiological interpretation,
- Jessica: Human walking,
- Todd: Knee ligament rehabilitation,
- Connolly: Fractures and dislocations closed management Vol-I & II,
- Stanley: Treatment & rehabilitation of fractures,
- William: Total joint replacement,
- Anthony: A color atlas of clinical orthopedics,
- Textbook of Orthopedics by – Dr. N. Natarajan
- System of Orthopedics by – Apley
- Clinical Orthopedics by – Richardson
- Jayanth Joshi – Text book of Orthopedic for Physiotherapist
- Orthopedic Text book by – G.S.Kulkari

- Cash Textbook of Orthopedics
- Orthopedic Assessment – Magee
- Saunder’s manual of physical therapy
- Low back pain – Hand book herring
- Text book of Orthopedics abnezar
- Amputation and prosthetics may
- Musculo Skeletal physiotherapy
- Orthopedic physical examination – Robert Donatelle
- Orthopedic examination – Macre
- Old & New Tidy’s for physiotherapists
- Jenny: Pain – a text book for therapist
- Vertebral & Peripheral Manipulation – G. D. Maitland
- Mobilization & Manipulation - Susan L. Edmund
- Cervical, Thoracic and Lumbar Spine – Mckenzie
- Combined Movement Therapy – Edwards
- Neuromusculoskeletal Examination – Nicola J. Petty
- Rehabilitation of the Spine –Craig Leibenson
- Textbook of Orthopedics – James Cyriax
- Modern Manual Therapy - Gregory P. Greve

MPT IN NEUROLOGY

PAPER - V

NEUROANATOMY AND NEUROPHYSIOLOGY, PATHOMECHANICS

NEURO ANATOMY:

- a. Introduction and organization of nervous system normal development of brain and spinal cord.
- b. Neuro-biology of neurons and Neuro glia.
- c. Coverings of the nervous system.
- d. Nerve fibres.
- e. Dermatomes and Myotomes.
- f. Cerebrum and cerebral hemispheres, cerebral cortex.
- g. Cerebellum and its connections.
- h. Brian stem – Mid brain, pons, medulla.
- i. Thalamus, hypothalamus – connections.
- j. Limbic system, reticular formation.
- k. Internal capsule, corpus striatum.
- l. Basal ganglia and its connections.
- m. Ventricular systems and CSF.
- n. Blood brain barrier.
- o. Spinal cord - tracts – ascending, descending.
- p. Blood supply of CNS & Peripheral nervous system venous drainage of CNS.
- q. Peripheral nervous system.
- r. Autonomic nervous system.
- s. Cranial nerves and their nuclei.

It is mandatory to see / comprehend the dissected parts of the nervous sytem.

NEUROPHYSIOLOGY

Functions of all the organs mentioned below.

- a) Coverings of the nervous system.
- b) Nervous fibres.
- c) Cerebrum and cerebral hemispheres, cerebral cortex.
- d) Cerebrum and its connections.
- e) Brain stem – Mid brain, pons, medulla.
- f) Thalamus, hypothalamus – connections.
- g) Limbic system, reticular formation.
- h) Internal capsule, corpus striatum.
- i) Basal ganglia and its connections.
- j) Ventricular systems and CSF.
- k) Blood brain barrier.
- l) Spinal cord- tracts – ascending, descending.
- m) Peripheral nervous system.
- n) Autonomic nervous system.
- o) Cranial nerves and their nuclei.
- p) Motor control.
- q) Neural development of posture and gait.
- r) Physiology of Pain.
- s) Physiology of Reflexes – normal and abnormal.
- t) Physiological basis of motor learning and recovery of functional motor Control.

PATHOMECHANICS

The student should get well acquainted with the pathomechanics of individual joints, gait and posture related to neurological diseases.

MPT IN NEUROLOGY

PAPER - VI

CLINICAL CONDITIONS

Causes, Clinical Features, pathophysiology, general investigation [blood test, serum, creatinine, CSF analysis etc], Medical and surgical management of the below mentioned conditions:

- ❑ Intracranial Neoplasm's:
Gliomas, Meningiomas, Neuromas, Angiomas, Cranio-pharyngiomas, Pituitary adenomas, Medical and surgical management.
- ❑ Pyogenic infections of CNS:
Meningitis, Brain abscess, Tuberculosis, Neurosyphilis.
- ❑ Viral Infections of CNS:
Polomyelitis, Viral encephalitis, Substance sclerosing encephalitis, AIDS
- ❑ Cerebral-Vascular Disease:
Stroke syndrome, Ischeamic stroke infarction, thrombo-embolic stroke Hemorrhagic stroke, Transient Ischeamic attack, Arterio-venous malformation of the brain. Intra cranial hemorrhage.
- ❑ Metabolic disorders of the brain
Hypoxic encephalopathy, hypoglycemic encephalopathy, Hepatic encephalopathy.
- ❑ Degenerative disease of the nervous system:
Parkinson's disease, Motor neuone disease, Amyotrphic lateral sclerosis. Progressive bulbar palsy, Alzheimer's disease.
- ❑ Cerebral palsy
- ❑ Spina bifida
- ❑ Polyneuropathy: Post infective poly radiculo neuropathy [Gullian Barrie Syndrome], Diabetic neuropathy, hereditary sensory motor neuropathy.
- ❑ Disorders of Spinal Cord
Compression of Spinal Cord, neoplasm of the vertebral column, Inter vertebral disc prolapsed. Extra dural or epi dural abscess.
- ❑ Syringomyelia, Multiple Sclerosis, Myasthenia gravis
- ❑ Peripheral Nerve and plexus lesions.
- ❑ Craniovertebral junction abnormalities.
- ❑ Hydrocephalus.
- ❑ Cerebellar lesions.

MPT IN NEUROLOGY

PAPER – VII

ASSESSMENT AND EVALUATION

The main objective of this paper is to make the student familiarize with the assessment tools in neurological physiotherapy. The student should understand the use of various assessment tools to specific conditions. The tool should have established reliability and validity and should be tested on a specific population group. The following assessment tools should be critically analyzed and reviewed. Any latest tools published in journals as research articles should also be critically discussed in the journal review meetings.

1. Measurement and assessment: what and why?
2. Classification of impairment, disability and handicap.
3. How to choose a measure?
4. Measurement in practice
5. General Neurological Examination.
6. Measures for use in neurological disability:

Measures of cognitive impairment and disability:

- i. Glasgow coma scale
- ii. Children's coma scale
- iii. Edinburgh – 2 coma scale
- iv. Blessed Dementia rating scales: Information – Concentration- Memory test; Dementia Scale.

Measures of motor impairment:

- i. Motor club assessment
- ii. Rivermead motor assessment
- iii. Motricity index
- iv. Trunk control test
- v. Motor assessment scale
- vi. Modified ash worth scale for spasticity.
- vii. Isometric muscle strength
- viii. Motor neuron test / Amyotrophic lateral sclerosis.
- ix. Dynamometry.

Measures of focal disability

- i. Standing balance
- ii. Functional ambulation categories
- iii. Hauser ambulation index
- iv. Timed walking test
- v. Rivermead mobility index
- vi. Nine hole peg test
- vii. Action research arm test
- viii. Franchay arm test

Activities of daily living and extended ADL tests

- i. Barthel ADL index
- ii. Katz ADL index
- iii. Nottingham ten point ADL index
- iv. Rivermead ADL scale
- v. Northwick park index of independence in ADL
- vi. Kenny self care evaluation
- vii. Nottingham extended ADL index
- viii. Franchay activity index

Global measures of disability

- i. OPCS disability scale – severity categories
- ii. Functional independence measure
- iii. PULSES profile

Measures of Handicap and quality of life

- i. WHO handicap scale
- ii. Rankin scale
- iii. Glasgow outcome scale
- iv. Quality of life – a measure
- v. Environmental assessment – non-standard.

Multiple Sclerosis

- i. Kurtzke Multiple sclerosis rating scale
- ii. An illness severity for multiple sclerosis

Stroke scales

- i. Mathew stroke scale
- ii. National institute of health stroke scale
- iii. Canadian neurological scale
- iv. Orgogozo Score
- v. Hemispheric stroke scale
- vi. Clinical classification of stroke [Bamford]
- vii. Allen score for prognosis of stroke
- viii. Guy's hospital score for haemorrhage

Head injury

- i. Galveston orientation and amnesia test
- ii. Rappaport disability rating scale

Parkinson's disease

- i. Columbian rating scale
- ii. Parkinson's disease impairment index, disability index
- iii. Hoehn and Yahr grades
- iv. Unified Parkinson's disease rating scale version 3

Spinal cord injury

- i. Frankel's scale
- ii. Motor index and sensory indices
- iii. American spinal cord injury association assessment chart

Pain Assessment & Evaluation

Investigative Techniques:

CT scans, MRI, X – Ray, Nuclear imaging, EEG

NCV, EMG: Evoked potentials, Basic procedure, principles and interpretation of results in neurological conditions.

Assessment of posture, gait, Co-ordination & voluntary control.

MPT IN NEUROLOGY
PAPER – VIII
PHYSIOTHERAPEUTIC INTERVENTIONS

Students should be able to plan appropriate treatment regime based on the knowledge of various subjects learned during the two year programme for the below mentioned conditions. Additionally emphasis should be on special techniques / approaches like Bo bath, Neurodevelopment therapy, Motor relearning programme, Sensory Integration, PNF, Roods approach etc. Students should also update himself / herself with latest advancement in the therapeutic approaches.

- Physiotherapeutic interventions for relief of pain.
- Physiotherapy management of patients with postural control, mobility control disorders.
- Neurological rehabilitation – neurofacilitation approach.
- Intracranial Neoplasms:
Gliomas, Meningiomas, Neuromas, Angiomas, Cranio – pharyngiomas, pituitary adenomas, Medical and surgical management.
- Pyogenic infections of CNS:
Meningitis, Brain abscess, Tuberculosis, Neurosyphilis.
- Viral infections of CNS:
Poliomyelitis, Viral encephalitis, Substance sclerosing encephalitis, AIDS
- Cerebro – Vascular Diseases:
Stroke syndrome, Ischemic stroke infarction, thrombo – embolic stroke, Hemorrhagic stroke, Transient ischaemic attack, Arterio – venous malformation of the brain. Intra cranial hemorrhage.
- Metabolic disorders of the brain
Hypoxic encephalopathy, hypoglycemic encephalopathy, Hepatic encephalopathy.
- Degenerative diseases of the nervous system:
Parkinson's disease, Motor neuron disease, Amyotrophic lateral sclerosis.
Progressive bulbar palsy, Alzheimer's disease.
- Cerebral palsy
- Spina bifida
- Polyneuropathy: Post infective poly radiculo neuropathy[Gullian Barrie Syndrome],
Diabetic neuropathy, hereditary sensory motor neuropathy.

- Disorders of spinal cord
Compression of spinal cord, neoplasm of the vertebral column, Inter vertebral disc prolapsed. Extra dural or epi dural abscess.
- Syringomyelia, Multiple Sclerosis, Myasthenia gravis
- Peripheral Nerve and plexus lesions.
- Craniovertebral junction abnormalities
- Hydrocephalus.
- Cerebellar lesions.

Reference:

- Goodman: Pathology implications for the physical therapist,
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- Alfred: Early diagnosis & therapy of cerebral palsy,
- Charles: The neuroscience of human movement,
- Mark: Traumatic brain injury rehabilitation,
- Michael: Clinical skills in neurology,
- Fields: Pain syndromes in neurology,
- Anne: Sensory integration theory & practice,
- Jenny: Pain – a textbook for therapist,
- Harriet: Chronic pain management for physical therapist,
- Janet: A motor relearning programme for stroke,
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- Netlers Atlas: Neuro Anatomy 1976
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- Snell Richards Clinical Neuroanatomy for medical students
- Campbell: Pediatric Neurological Physical Therapy
- Hoppenfeild: Orthopedic Neurology
- Janet Carr: Neurological Rehabilitation
- Low back pain – handbook Herring
- Darse Humphred – Textbook of Neurology
- Shepered: Pediatric physical therapy
- John Pattern: Neurological differential diagnosis
- Fredrick: Pathophysiology of motor system.
- Neurological Examination – DeJongs

MPT IN CARDIOVASCULAR & PULMONARY
PAPER – V
ANATOMY, PHYSIOLOGY AND PATHOMECHANICS

1. Development of cardiovascular and pulmonary system.
2. Anatomy & Physiology of cardio pulmonary system.
3. Vascular mechanics.
4. Biomechanics of thoracic cage Normal & Diseased.
5. Neural control of cardio vascular, pulmonary systems,
6. Mechanics of breathing using lung compliance,
7. Neural control of airway resistance, control of breathing, matching of blood gas, systemic, coronary, pulmonary circulations.
8. Mechanics and Mechanism of Respiratory Muscles.
9. Respiratory muscle blood flow.
10. Determinants of respiratory muscle fatigue, respiratory muscle function in disease, effect of training programme on pulmonary function.
11. Breathing mechanism in normal system and cardiac functions.
12. Cough reflex.
13. Maintenance of blood pressure.

MPT IN CARDIOVASCULAR & PULMONARY

PAPER – VI

CLINICAL CONDITIONS

Definitions, Causes, Clinical Features, pathophysiology, general investigation [blood test, serum, creatinine, etc.], Medical and surgical management of the below mentioned conditions.

- ❑ Neonates with respiratory disease.
Pulmonary disease in immature babies, Neonatal distress, Birth asphyxia, Broncho pulmonary dysphasia, Nickity Wilson syndrome, Bronchial stenosis.
- ❑ Children with respiratory dysfunction.
COPD, Asthma, Cystic fibrosis, Immunological deficits, Pertusis.
- ❑ Peripheral vascular disorders,
Arterial pathological conditions.
Venous pathological conditions,
Lymphatic pathological conditions.
- ❑ Obstructive lung disorders
COPD chronic bronchitis, Emphysema, Bronchiectasis, Asthma, Cystic fibrosis (early stages)
- ❑ Restrictive lung disorders.
Cystic fibrosis.
- ❑ Infectious lung disorders
- ❑ Congenital heart diseases.
- ❑ Valvular heart disorders
- ❑ Rheumatic heart disease
- ❑ Diseases of the myocardium.
- ❑ Tumors of the heart and lung.
- ❑ Ischaemic heart diseases.
- ❑ Trauma to the chest.
Lung abscess, Broncho pneumonia, Destroyed lung, Carcinoma of lung, pulmonary embolism, interstitial lung disease.
- ❑ Occupational lung disorders.
- ❑ Cardiopulmonary complications in burns
- ❑ Surgical conditions:
Thoraco plasty, Empyema thoracis, Rib resection, Decortication window operation, Omento plasty.

- Surgeries
To thoracic wall, Surgeries in Cardiac conditions, vascular conditions and Pulmonary conditions.
- Cardiopulmonary medication and their effects on activity performance.

MPT IN CARDIOVASCULAR & PULMONARY

PAPER – VII

EVALUATION & ASSESSMENT

MEASUREMENTS & DOCUMENTATION

1. Measurements

Types of measurements, selecting measurements, performing measurements.
Interpreting measurements.

2. Documentation

Purpose of documentation, Types of documentation, General guidelines for content and organization.

(i) Subjective information, (ii) Objective information, (iii) Assessment, (iv) Plan, (v) Summary.

HISTORY

History of illness, past medical history, present medical history, occupational history, social history, history of personal habits (smoking), family history, prior physiotherapy treatment history.

GENERAL RESPIRATORY EVALUATION

History, chest examination.

□ Components of Chest Examination

1. Inspection

- a. Evaluation of general appearance, topographical anatomic land marks.
- b. Specific evaluation of head and neck
- c. Chest wall configuration, Chest wall deformities.
- d. Evaluation of unmoving chest.
- e. Evaluation of moving chest, Breathing pattern.
- f. Evaluation of speech, breath, cough and sputum and their guidelines.
- g. Anaemia, Cyanosis, Clubbing, Respiratory pattern.

2. Auscultation

- a. The stethoscope.
- b. Nomenclature & interpretations of breath sounds.
- c. The examination technique.
- d. Interpretation of examination.

3. Palpation

- a. Evaluation of mediastinum and tracheal deviation.
- b. Evaluation of chest expansion.
- c. Evaluation of fremitus.
- d. Evaluation of scalene muscles.
- e. Evaluation of chest pain.
- f. Evaluation of diaphragmatic movement.
- g. Evaluation of edema.

4. Mediate Percussion

- a. Evaluation of lung density.
- b. Evaluation of diaphragmatic excursion.

□ LABORATORY EVALUATION

- a. Arterial blood gases, Assessment of acid base balance, Blood Gas Interpretation, Factors affecting arterial blood gases.
- b. Pulse oximetry.
- c. Tests of ventilatory functions.

Pulmonary function test (PFT), spirometry, Dead space, lung volumes, lung capacities, Air Flow Measurements, Tests of forced expiration (PEFR), (FEV1) flow volume curves, flow volume loops, closing volume, Airway closure, maximum voluntary ventilation. Guidelines for interpretation of PFT. Diagnosis of Restrictive and Obstructive Lung Diseases with the help of PFT.

□ EXERCISE TESTING: 12 Minute walking test, Bergs PRE test

□ CHEST RADIOGRAPHY:

Principles of chest x – ray interpretation.

Guidelines for interpretation of abnormal chest radiograph.

□ BACTERIOLOGICAL AND CYTOLOGICAL TESTS

Clinical significance of test results.

□ MULTI SYSTEM ASSESSMENT AND LABORATORY INVESTIGATIONS ELEMENTS

Blood, pulmonary function, cardiac function, peripheral vascular function, kidney function, endocrine function, pancreatic function, immunological function.

II. CARDIOVASCULAR

Inspection: Chest wall deformities, Respiratory pattern, Cyanosis, Clubbing.

Palpation: Edema,

Auscultation:

- a. The stethoscope.
- b. Nomenclature & interpretations of breath sounds.
- c. The examination technique.
- d. Gallops and murmurs.

□ Electrocardiogram

Leads, Tracing & Recording the ECG, Evaluating ECG scripts, interpreting normal ECG, Determination of heart rate, Evaluation of rhythms, Interpreting abnormal ECG findings related to cardiac problems. ECG stress testing.

□ Evaluation of a Patient with Coronary Artery Disease

1. Review of medical records and extraction of pertinent data.
2. Interview and examination of patient.
3. Preliminary assessment of clinical status.
4. Determination of candidacy for further evaluation.
5. Evaluation of functional activities.
6. Evaluation of activity of daily living.
7. Monitored ambulation.
8. Low-level exercise test.
9. Definitive assessment regarding candidacy for exercise therapy
10. Individually monitored aerobic exercise and strengthening program.
11. Maximum exercise test.
12. Additional invasive and noninvasive test.
13. Serum lipid profile.
14. Evaluation of monitored job simulation

□ Low level exercise testing

Purpose, Contra – indications, Termination points.

□ Maximum exercise testing

Purpose, Guidelines, Exercise test protocols, Contraindications and precautions, Criteria for termination of test, Prognostic implications from exercise testing, Exercise prescription and activity recommendation based on maximal exercise test results, interpretation of maximal exercise test results.

□ Exercise tolerance test or stress test METS and their use in evaluation

□ EVALUATION OF PERIPHERAL VASCULAR DISORDERS

- A) Arterial evaluation
- B) Venous evaluation
- C) Lymphatic evaluation

- CARDIOPULMONARY EVALUATION IN INTENSIVE CARE UNIT.
- CARDIOPULMONARY EVALUATION OF VENTILATORY DEPENDENT PATIENT.

Respiratory rate, Respiratory pattern, Pulse rate, Temperature, Blood pressure. Fluid and electrolyte balance; Chest tube drainage and fluid collection system. Arterial blood gas analysis. ECG monitoring, Intra 0-arterial lines, Pulmonary artery balloon flotation catheter, Intravenous lines, Central venous pressure, Intra aortic balloon counter pulsations. Intra cranial pressure, Electroencephalogram.

- SPECIAL TESTS

Cardiac scans PET scans, Infract Avid Scans, Pulmonary scans, Perfusion scans, Ventilation scans, ECHO Cardiography, Angiography, Interpretation of results.

- Physiotherapy Evaluation of Respiratory Conditions.
- Physiotherapy Evaluation of Cardiac Conditions.
- Pre Operative Evaluation of Pulmonary Surgeries.
- Post Operative Evaluation of Pulmonary Surgeries.
- Pre Operative Evaluation Cardiac Surgeries.
- Post Operative Evaluation of Cardiac surgeries.

Apart from the above student is expected to know the latest developments in physiotherapy Evaluation of cardio respiratory conditions.

MPT IN CARDIOVASCULAR & PULMONARY

PAPER – VII

PHYSIOTHERAPY INTERVENTIONS

- Artificial respiration.
- Exercise planning and prescription.
- Cardiopulmonary resuscitation, procedures and techniques.
- Effects of aerobic, anaerobic exercises on cardiac functions.
- Adjuncts to chest physiotherapy.
- Physiotherapy techniques in relation with chest physiotherapy.
- Pediatric cardiopulmonary physiotherapy.
- Vascular defects of heart and postoperative management.
- Risk factors in cardio pulmonary disorders.
- Cardiopulmonary complications and physiotherapy management.
- Prescription of postoperative preventive life style.
- Physiotherapeutic interventions for relief of pain.

Apart from the above

Student should learn the physiotherapy interventions and recent advances in the physiotherapy management of following conditions.

(Preoperative & Postoperative)

- Neonates with respiratory diseases.
Pulmonary diseases in immature babies, Neonatal distress, Birth asphyxia, Broncho pulmonary dysphasia, Nikity Wilson syndrome, Bronchial stenosis.
- Children with respiratory dysfunction.
COPD, Asthma, Cystic fibrosis, Immunological deficits, pertusis.
- Peripheral vascular disorders,
Arterial pathological conditions,
Venous pathological conditions,
Lymphatic pathological conditions.
- Obstructive lung disorders
COPD, Chronic bronchitis, Emphysema, Bronchiectasis, Asthma, Cystic fibrosis (early stage).
- Restrictive lung disorders.
Cystic fibrosis.
- Infectious disorders.
- Congenital heart diseases.
- Vascular heart disorders.
- Rheumatic heart disease.
- Diseases of the myocardium.

- ❑ Tumors of the heart and lung.
- ❑ Ischaemic heart diseases.
- ❑ Trauma to the chest.
- ❑ Lung abscess, Broncho pneumonia, Destroyed lung, Carcinoma of lung, pulmonary embolism, interstitial lung diseases.
- ❑ Occupational lung disorders.
- ❑ Management of cardiopulmonary complications in burns patient.
- ❑ Surgical conditions:
Thoraco plasty, Empyema thorscis, Rib resection, Decortication window operation, Omento plasty.

- ❑ Surgeries to thoracic wall, surgeries in cardiac conditions, vascular conditions and pulmonary conditions.

References:

- Goodman: Pathology implications for the physical therapist.
- Barbara: Muscles, nerves and movement kinesiology in daily living.
- Mandy: Cardiovascular respiratory physiotherapy.
- Jennifer: Physiotherapy for respiratory and cardiac problems, adult and pediatrics.
- Leon: Multidisciplinary approaches to breathing pattern disorders.
- Jones: Clinical exercise testing.
- Peter: Coronary artery diseases essentials of prevention and rehabilitation programme.
- Jean: Advances in cardiopulmonary rehabilitation.
- Carl: Modern cardiovascular physiology.
- Mathews: Cardiopulmonary anatomy and physiology.
- Neil: Mechanical ventilation.
- Robert: Cardiovascular physiology.
- John: Pulmonary rehab. The obstructive and paralytic conditions.
- Victor: Exercise in the heart
- Saunders manual of physical therapy.
- Desmond Julien – Textbook of cardiology.
- Webber- Cardio pulmonary physical therapy.
- Jennifer & Barbara: Physiotherapy for respiratory and cardiac problems.
- Donna: Cardiopulmonary physical therapy.

MPT IN SPORTS

PAPER – V

ANATOMY, PHYSIOLOGY & PATHOMECHANICS

- Psychological factors of sports injuries.
 - Psychological factors of sports injuries.
Types of injuries, Reaction to injury, Response of joint structures to injury, Effects of immobilization, Effects of remobilization.
 - Inflammatory and healing process, micro trauma, stress reactions.
 - Rules and regulations of sports, sport specific injuries.
 - Pathomechanics of sport injuries.
 - Physical demand in different sports.
 - Flexibility exercises - Neurophysiology.
 - Psychological effects of stretching & mobilizations prior to the participation in sports.
 - Types of exercises and their psychological effects related to sports.
 - Biomechanics of sports and its relationship to joint injuries.
 - Uses & application of biomechanics in different sport events (like throwing mechanics, running mechanics, swimming mechanics...)
 - Aquatic – Physical properties of water, Physiologic effects of water immersion and its therapeutic value.
1. Embryological development of musculoskeletal system.
 2. Osteology: Structure of bone, ossification of bones, Skull bones, facial bones, Bones of upper extremity, Pelvis, Vertebral Column, Ribs.
 3. Myology: Structure of muscle, Types of muscle, Muscle fibers, Origin, insertion, action, nerve supply of muscles of face, Upper extremity, Lower extremity, Trunk.
 4. Arthology: Structure of joint, types of joints, detailed structure and formation of all the joints, Neurology of joint.
 5. Neurology: Peripheral Nerves; Dermatomes and myotomes.
Physiology: Joint physiology [Movements], muscle physiology.
Pathomechanics of fractures, deformed joints.

MPT IN SPORTS
PAPER – VI
CLINICAL CONDITIONS

Students is expected to learn common causes, mechanism, pathophysiology, signs, symptoms, medical and surgical treatments of following sports related injuries and also should know the recent advantages in the surgical, medical management of sports related injuries.

➤ Epiphyseal injuries:

Classification, complications and prognosis of epiphyseal injuries, Osgood schlatter disease, tractionepiphysitis, tendonitis at the insertion of patellar tendon, complete avulsion of the epiphysis of the tibial tubercle shoulder - contributing risk factors – intrinsic factors, extrinsic factors.

➤ Shoulder Gridle Injuries:

Injuries to the sternoclavicular joint sprains, dislocations, Scapulothoracic joint lesions, acromioclavicular joint sprains, anterior dislocation of glenohumeral joint, recurrent anterior dislocation of the shoulder, posterior dislocation of shoulder, thoracic outlet syndrome, painful arc, Rotator cuff injuries, Impingement syndromes, Glenoid Labrum lesions.

➤ Elbow Joint Injuries:

Olecranon bursitis, Valgus extension overload, Elbow, Ulnar nerve lesions, Ulnar & radial collateral ligament sprains, contusions and strains, Dislocations, Osteochondritis dissicans, Little Leaguers Elbow, problems resulting from throwing – medical lesions, lateral lesions posterior lesions.

➤ Elbow injuries from Tennis:

Epicondylitis, Incidence, Pathology, Mechanism of injury.

➤ Wrist and Hand Injuries:

Colle's fracture, scaphiod fracture, Gamekeeper's Thumb, DIP joint fracture & dislocation, Jersey finger, Boutonniere deformity, pseudo boutonniere deformity, fractures of the metacarpals, Bennett's fracture, Mallet finger, Dequervain's tenosynovitis of the thumb, Bowler's thumb, handlerpalsy, Hamate fracture, Ganglion cysts, Trigger finger, Carpal tunnel syndrome.

➤ Thigh Injuries:

Contusion to the quadriceps, strain of the quadriceps musculature, acute strain of the hamstring group, complete rupture of the patellar tendon.

➤ Knee Injuries:

Knee ligament injuries first- degree sprain, second degree sprain, third – degree sprain, Anterior and posterior cruciate tears, Anteriolateral instability meniscal lesion, Articular cartilage lesions, Patello femoral dysfunction.

➤ Injuries of the patella:

Patella fracture – acute dislocation, recurrent dislocation, subluxation and spontaneous reduction of a dislocated patella, Osteochondritis dissecans, Jumper's knee.

➤ Injuries to the lower leg, ankle and foot:

Tibiofibular synostosis, Rupture of the gastrocnemius, tennis leg, total rupture of the Achilles tendon, partial rupture of the Achilles tendon, Tendinopathies – Achilles tendonitis, anterior tibialis tendonitis, peroneal tendonitis, Poster tibialis tendonitis, Flexor hallucis longus tendonitis, Flexor digitorum longus tendonitis, Compartmental compression syndromes, Heel bruises, Os trigonum injury, Calcaneal apophysitis, Tarsometatarsal injuries, Tarsal tunnel syndrome, Cuboids syndrome, Metatarsal stress fracture, Interdigital neuroma, Stair climbers transient paresthesia, Turf toe, sesmoitidis.

➤ Injuries to the Ankle:

Sydesmotic ankle sprain, Inversion sprains, version sprains, dorsiflexion sprains, tarsal tunnel syndrome, stress fracture of the metatarsal, vorton's neuromas, corns and calluses, blisters, ingrown toenails, peroneal tendon subluxation.

➤ Injuries to the low back:

Postural syndrome, Dysfunction syndrome, Derangement syndrome, Spondylolysis.

➤ Injuries to the Running Athlete:

Causes of overuse injuries, Common running induced injuries to the lower back- common running induced injuries to the hop – iliotibial tract pain, trochanteric bursitis, stress fracture of femoral neck, slipped capital femoral epiphysis, vague hip pain.

➤ Common Running related injuries to the knee:

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

➤ Common Running related injuries to the lower leg:

Tibial stress relation, Stress fracture, medical tibial stress syndrome, compartment syndrome – anterior posterior lateral, fibular stress reaction and stress fracture, retrocalcaneal bursitis medical arch pain, plantar fasciitis.

➤ Swimming Injuries:

“Swimmers Shoulders”, anterior subluxation of the Gleno-humeral joint, Breaststroker’s injury.

MPT IN SPORTS
PAPER – VII
ASSESSMENT & EVALUATION

- Emergency Sports Assessment
 - Pre – event preparation
 - Primary Assessment
 - Levels of consciousness, Establishing the airway, Assessment for bleeding, Fluid Loss and Shock, Pupil Check, Assessment for spinal cord injury, Assessment for Head Injury, Assessment for Movement, Positioning the patient, Injury severity, Secondary Assessment.

- Preparticipation Evaluation
 - Objectives of the Evaluation
 - Setting up the valuation
 - Preparticipation History
 - Examination
 - Eye examination, Musculoskeletal Examination, Neurological Examination and Convulsive Disorders, Cardiovascular Examination, Pulmonary Examination, Urogenital Examination for Heat Disorders, General Medical Problems, Dental Examination.

- Application of isokinetics testing.
 - Students should be able to use & understand results of electro diagnostic tools & imaging techniques used in the sports evaluation.
 - ❑ Assessment & evaluation of the following

- Epiphyseal Injuries:
 - Classification, complications and prognosis of epiphyseal injuries, Osgood schlatter disease, traction epiphysitis, tendonitis at the insertion of patellar tendon, complete avulsion of the epiphysis of the tubercle shoulder.

- Shoulder Gridle Injuries:
 - Injuries to the sternoclavicular joint – sprains, dislocations, Scapulothoracic joint lesions, acromioclavicular joint sprains, anterior dislocation of glenohumeral joint, recurrent anterior dislocation of the shoulder, posterior dislocation of the shoulder, thoracic outlet syndrome, painful arc, rotator cuff injuries, Impingement syndromes, Glenoid Labrum lesions.

- Elbow Joint Injuries:
 - Olecranon bursitis, Valgus extension overload, elbow, ulnar nerve lesions, Ulnar & redial collateral ligament sprains, Contusions and strains, Dislocations, Osteochondritis dissicans, Little Leaguers elbow, problems resulting from throwing – medical lesions, lateral lesions posterior lesions.

➤ Elbow Injuries from Tennis: Epicondylitis.

➤ Wrist and hand Injuries:

Colle's fracture, scaphoid fracture, Gamekeeper's Thumb, DIP joint fracture & dislocation, Jersey finger, Boutonniere deformity, pseudo boutonniere deformity, fracture of the metacarpals, Bennett's fracture, Mallet finger, Dequervain's tenosynovitis of the thumb, Bowler's thumb, hander palsy, Hamate fracture, Ganglion cysts, Trigger finger, Carpal tunnel syndrome.

➤ Thigh Injuries:

Contusion to the quadriceps, strain of the quadriceps musculature, acute strain of the hamstring group, complete rupture of the patellar tendon.

➤ Knee Injuries:

Knee ligament injuries first – degree sprain, second – degree sprain, third – degree sprain, Anterior and posterior cruciate tears, anteriolateral instability meniscal lesion, Articular cartilage lesions, Patello femoral dysfunction.

➤ Injuries of the patella:

Patella fracture – acute dislocation, recurrent dislocation, subluxation and spontaneous reduction of a dislocated patella, Osteochondritis dissecans, Jumper's knee.

➤ Injuries to the lower leg, ankle and foot:

Tibiofibular synostosis, Rupture of the gastrocnemius, tennis leg, total rupture of the Achilles tendon, partial rupture of the Achilles tendon, Tendinopathies – Achilles tendonitis, anterior tibialis tendonitis, peroneal tendonitis, Poster tibialis tendonitis, Flexor hallucis longus tendonitis, Flexor digitorum longus tendonitis, Compartmental compression syndromes, Heel bruises, Os trigonum injury, Calcaneal apophysitis, Tarsometatarsal injuries, Tarsal tunnel syndrome, Cuboids syndrome, Metatarsal stress fracture, Interdigital neuroma, Stair climbers transient parasthesia, Turf toe, sesmoitidis.

➤ Injuries to the Ankle:

Sydesmotic ankle sprain, Inversion sprains, version sprains, dorsiflexion sprains, tarsal tunnel syndrome, stress fracture of the metatarsal, vorton's neuromas, corns and calluses, blisters, ingrown toenails, peroneal tendon subluxation.

➤ Injuries to the low back:

Postural syndrome, Dysfunction syndrome, Derangement syndrome, Spondylolysthesis.

➤ Injuries to the Running Athlete:

Causes of overuse injuries, Common running induced injuries to the lower back- common running induced injuries to the hop – iliotibial tract pain, trochanteric bursitis, stress fracture of femoral neck, slipped capital femoral epiphysis, vague hip pain.

➤ Common Running related injuries to the knee:

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

➤ Common Running related injuries to the lower leg:

Tibial stress relation, Stress fracture, medical tibial stress syndrome, compartment syndrome – anterior posterior lateral, fibular stress reaction and stress fracture, retrocalcaneal bursitis medical arch pain, plantar fasciitis.

➤ Swimming Injuries:

“Swimmers Shoulders” anterior subluxation of the Glenohumeral joint, Breastroker's injury.

MPT IN SPORTS

PAPER – VIII

PHYSIOTHERAPY INTERVENTIONS

➤ Prevention of Athletic Injuries

Athletic coordinating program – skeletal muscle Type 1 and Type 2 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

Protecting equipments, supportive devices, motion limiting devices.

➤ Treatment of Athletic Injuries

Taping and wrapping techniques.

➤ Emergency care and Athletic first aid

Cardiopulmonary emergencies, ABC of resuscitation, Heimlich maneuver
shock Injuries – internal injuries, Head and neck injuries, fracture,
dislocations.

➤ Injury First Aid

ICE or cold application, compression, elevation, gait instruction, stretcher
and wheelchair uses.

➤ Physiotherapeutic interventions for relief of pain.

➤ Therapeutic modalities and procedures

General principles of therapeutic modalities, Hydrotherapy, Short-wave
diathermy, Microwave diathermy, Ultrasound, Lontophoresis,
Phonophoresis, TENS, Cryotherapy, cold spray, contrast bath, paraffin

wax bath, ultraviolet, massage indications, contraindications, therapeutic and physiologic effects, treatment techniques.

- Fitness training related to specific sports.
- Manipulative therapy- principles, concept, indications, contraindications, applications.
- Injuries Rehabilitation:

Goals of rehabilitation, types of exercise – isometric exercise, isotonic exercise, special forms of exercise – manual resistance, proprioceptive neuromuscular facilitation, surgical tubing, circuit training, sport – specific skills.

- Applications of isokinetics in athletic rehabilitation.
- Nutrition and athlete:

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

Prevention and physiotherapy treatment of following:

- Epiphyseal Injuries:

Classification, complications and prognosis of epiphyseal injuries, Osgood schlatter disease, tractionepiphysitis, tendinitis at the insertion of patellar tendon, complete avulsion of the epiphysis of the tibial tubercle shoulder.

- Shoulder Gridle Injuries:

Injuries to the sternoclavicular joint – sprains, dislocations, Scapulothoracic joint lesions, acromioclavicular joint sprains, anterior dislocation of glenohumeral joint, recurrent anterior dislocation of the shoulder, posterior dislocation of the shoulder, thoracic outlet syndrome, painful arc, rotator cuff injuries, Impingement syndromes, Glenoid Labrum lesions.

➤ Elbow Joint Injuries:

Olecranon bursitis, Valgus extension overload, elbow, ulnar nerve lesions, Ulnar & radial collateral ligament sprains, Contusions and strains, Dislocations, Osteochondritis dissecans, Little Leaguers elbow, problems resulting from throwing – medial lesions, lateral lesions posterior lesions.

➤ Elbow injuries from Tennis:
Epicondylitis.

➤ Wrist and hand injuries:

Colle's fracture, scaphoid fracture, Gamekeeper's Thumb, DIP joint fracture & dislocation, Jersey finger, Boutonniere deformity, pseudo boutonniere deformity, fracture of the metacarpals, Bennett's fracture, mallet finger, Dequervain's tenosynovitis of the thumb, Bowler's thumb, hander palsy, Hamate fracture, Ganglion cysts, Trigger finger, Carpal tunnel syndrome.

➤ Thigh Injuries:

Contusion to the quadriceps, strain of the quadriceps musculature, acute strain of the hamstring group, complete rupture of the patellar tendon.

➤ Knee Injuries:

Knee ligament injuries first – degree sprain, second degree sprain, third – degree sprain, Anterior and posterior cruciate tears, anteriolateral instability meniscal lesion, Articular cartilage lesions, Patello femoral dysfunction.

➤ Injuries of the patella:

Patella fracture – acute dislocation, recurrent dislocation, subluxation and spontaneous reduction of a dislocated patella, Osteochondritis dissecans, Jumper's knee.

➤ Injuries to the lower leg, ankle and foot:

Tibiofibular synostosis, Rupture of the gastrocnemius, tennis leg, total rupture of the Achilles tendon, partial rupture of the achillies tendon,

Tendinopathies-Achille's tendonitis, Anterior tibialis tendonitis, Peroneal tendonitis, Posterior tibialis tendonitis, Flexor hallucis longus tendonitis, Flexor digitorum longus tendonitis, Compartmental compression syndromes, Heel bruises, Os trigonum injury, Calcaneal apophysitis, Tarsometatarsal injuries, Tarsal tunnel syndrome, Cuboids syndrome, Metatarsal stress fracture, Interdigital neuroma, Stair climbers transient paresthesia, Turf toe, sesamoiditis.

➤ Injuries to the Ankle:

Syndesmotic ankle sprain, Inversion sprains, eversion sprains, dorsiflexion sprains, tarsal tunnel syndrome, stress fracture of the metatarsal, Morton's Neuromas, corns and calluses, blisters, ingrown toenails, Peroneal tendon subluxation.

➤ Injuries to the low back:

Postural syndrome, Dysfunction syndrome, Derangement syndrome, Spondylolysis.

➤ Injuries to the Running Athlete:

Causes of overuse injuries. Common running induced injuries to the lower back – 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 pain, pes anserine bursitis, patellar tendonitis, retro patellar pain, lateral patellar pain, lateral knee pain, biceps femoral tendonitis.

➤ 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, retrocalcaneal bursitis medial arch pain, plantar fasciitis.

➤ Swimming Injuries:

“Swimmer's Shoulder” anterior subluxation of the Glenohumeral joint, breaststroke's injury.

➤ Sports for youth with disabilities:

Role of physiotherapist in preparing the impaired for sport events (like Para Olympics).

Apart from the above student should know the pre & postoperative rehabilitation protocols used in sports physiotherapy.

Reference:

- Saunder's manual of physical therapy,
- Maria Zuluaga: Sports physiotherapy applied science & practice,
- Thomas: Imaging of sports injuries,
- Sandra: Assessment of athletic injuries,
- David Reid: Sports injury assessment & rehabilitation,
- Chad: Evaluation of orthopedic and athletic injuries,
- Christopher M Norris : Sport injuries diagnosis & management,
- Joanne: Aquatic therapy programming guidelines and orthopedic rehabilitation,
- Skinner: Exercise testing & exercise prescription,
- VivianHaywards: Advanced fitness assessment& exercise prescription
- Katch & Katch, McArdle: Exercise physiology, energy nutrition, and human performance,
- Frank: Exercise physiology for health care professionals,
- David: Collision sport injuries and repair,
- James Hay: The biomechanics of sports techniques,
- Dinesh: Decision making and out comes in sports rehabilitation,
- Sports Medicine – Fox,
- Oxford Textbook of sports Medicine
- Sports Medicine – Karim Khan
- Sports Medicine – Kuprian
- Sports Medicine - Irvin & Roy

Reference Journals

1. American physical therapy association
2. Archives of physical medicine and rehabilitation
3. Australian journal of physiotherapy
4. Journal of pain
5. International journal of rehabilitation research
6. New Zealand journal of physiotherapy
7. Canadian journal of physiotherapy
8. Physiotherapy U.K.
9. Journal of orthopedics and sports physiotherapy

10. Journal of neurological rehabilitation
11. Journal of human movement studies
12. Journal of manual and manipulative therapy.

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MPT IN PAEDIATRIC NEUROLOGY

PAPER – V

ANATOMY, PHYSIOLOGY & PATHOMECHANICS

Development & growth of Central Nervous System. Patterns of normal, growth,

Development of language, Milestone development.

Anatomy of brain and Spinal cord, including Blood supply of brain and Spinal cord,

Visual Pathway, Connections of Cerebellum and extra pyramidal system. Spinal nerves and Spinal cord.

Pyramidal & Extra pyramidal systems, Myelination of pyramidal tract.

Neurophysiological basis of tone, posture, Movement, Co-ordination, balance & its abnormal Neuromechanics.

Pathomechanics of deformities in Neurological disorders, eg. Hemiplegia, Hemiplegic gait, Cerebral palsy etc.,

Paediatric nutrition – Elements of nutrition, Daily allowances / requirement of nutrients

Nutritional disorders and their relevance to physiotherapy.

MPT IN PAEDIATRIC NEUROLOGY

PAPER – VI

CLINICAL CONDITIONS

DEVELOPMENTAL DISORDERS

Factors related to developmental disorders, Early/late detection of disorders. Various disorders related to development. Heredity and genetic disorders, prematurity.

PHYSIOTHERAPY OF NEUROVASCULAR CONDITIONS

Neurological and vascular conditions with emphasis on spina bifida, cerebral palsy, poliomyelitis anterior horn cell diseases, sequelae of encephalopathy, meningitis and cerebro-vascular diseases, paralytic disorders including peripheral nervous system diseases. Traumatic Brain injury sequelae, Disorders in co-ordination and movement. Hydrocephalus, Muscular dystrophy and types, Peripheral neuro muscular disorders, Encephalitis, Brachial palsies. Identifying goals, planning goal-oriented physiotherapy, monitoring evaluation.

PHYSIOTHERAPY IN SURGICAL CONDITIONS

Pre-surgical physiotherapy, assisting to attain surgical goals. Post operative complications and their physiotherapy emphasis on pulmonary, cardiac and limb problems including prevention of DVT and pressure sores. Postoperative physiotherapy after bone, joint and tendon surgery, contracture release, amputations, cardiac and pulmonary surgery. Burns and their management.

CHILD WITH SPECIAL NEEDS

Physiotherapy management of children with various health conditions if they are specially challenged as in Mongolism, MR, Seizures, Attention Disorders and progressive diseases, Need based physiotherapy in a child with cancer.

Recent advances, Emerging issues; Schooling and physiotherapy, issues related to HIV and TB in children.

Conditions necessitating admission to Intensive / Critical care unit and Premature nursery.

MPT IN PAEDIATRIC NEUROLOGY

PAPER – VII

ASSESSMENT & EVALUTION

EVALUTION

Evaluation of the paediatric patient, Eliciting history from child and informant, Communication skills for managing paediatric patients, securing co-operation of the sick child, sharing information with parents/caregivers.

PHYSIOTHERAPEUTIC ASSESSMENT OF THE CHILD

Various assessment of child with developmental delay, Child on life support systems, Child with spasticity, ataxia, inco-ordination and other neurological conditions, Child with congenital limb deficiency / abnormality.

Assessment of fine motor, gross motor development Assessment of Infantile Hemiplegia, CP, Muscular Dystrophy, Down syndrome, Poliomyelitis, AIDS
Various scales of paediatric Assessment.

MPT IN PAEDIATRIC NEUROLOGY
PAPER – VIII
PHYSOTHERAPEUTIC INTERVENTION

PRINCIPLES OF PAEDIATRIC NURSING

Specific goals of paediatric nursing, caring the infant. Managing premature infant. Organization of premature nursery. Equipment in premature nursery and paediatric intensive/critical care units. Correct use of equipment; problems in managing infants/children with special needs.eg.patients on support systems / assistive devices, patients who have visual / hearing impairment, patients with mental sub normality and patients with progressive disorders. Caring the child before and after surgery.

MODALITIES AND TECHNIQUES:

Choosing the modality, precautions, contraindications, and care of equipment in the paediatric setting. Correct use of techniques of exercise; techniques and movement patterns; emphasis on various biofeedback, retraining, neuro developmental and PNF approaches monitoring and evaluation of patients on therapy.

Physiotherapy in intensive / critical care unit and premature nursery

Various Physiotherapy approaches of paediatric therapy. Rood, Bobath, Motor, Relearning, PNF, Vojta.

AIDS, APPLIANCES, SUPPORT SYSTEMS

Use of orthoses/prostheses in childhood and training. Special care needed for orthotic and prosthetic use. Enhancing function/participation of a child using support systems. Crutches, wheelchairs, and mobility aids in childhood.

THERAPEUTIC RECREATION

Definitions, Need for Recreation in children, Recreation Activities as therapy/exercise.

COMMUNITY PHYSIOTHERAPY

Need for community physiotherapy, planning exercise at home. Creating awareness of physiotherapy in selected members of community, monitoring & Evaluation of community work.

Reference :

1. Paediatric neurologic physical therapy – Suzan Campbell
2. Management of motor disorders of children with cerebral palsy Scrutton. D
3. Treatment of cerebral palsy child – Egel .P.F.
4. Conductive education and cerebral palsy – E. Cotton
5. Neurological basis for treatment of cerebral palsy – K. Bobath
6. Paediatric neurologic physical therapy -Sophie Levitt

M.P.T. IN HAND CONDITIONS

PAPER – V

ANATOMY, PHYSIOLOGY AND PATHOMECHANICS

1. Evaluation of Human Hand (differentiate between primates).
2. Osteology and Myology of Hand.
3. Nerves and Vessels of Hand.
4. Functional Anatomy of Hand.
5. Neural concepts of Hand movement, motor control, concepts of sensory Physiology.

6. Zones of Hand.
7. Patterns of use – Hand.
8. Functions of Hand – motor and sensory organ.
9. Wound Healing – process, skin wound, Tendon & Bone Healing.
10. Patho mechanics in Tendon injuries & Tendon transfers.
11. Patho mechanics of Rheumatoid Hand, Spastic Hand, Hansen’s Hand.

M.P.T. IN HAND CONDITIONS

PAPER – VI

CLINICAL CONDITIONS

1. Classification of Hand injuries (causes, occupational hazards)
2. Tendon Injuries (Flexor tendon, Extensor tendon Injuries)
3. Nerve Injuries of Hand.
4. Crush Injuries in Industrial accidents.
5. Burns - Hand.
6. Spastic Hand.

7. Rheumatoid Hand.
8. The Hand in Hansen's disease.
9. Reflex sympathetic dystrophy.
10. Dislocation of Hand.
11. Vascular lesion of Hand.
12. Phantom Hand pain.
13. Amputation of Hand.

M.P.T. IN HAND CONDITIONS
PAPER – VII
ASSESSMENT & EVALUATION

1. Detailed history
Skill in history taking
2. Physical examination
Upper Quarter Screening.
3. Neurological Examination of the OE.
4. Skill of Assessment
Observation / Palpation Evaluation.
5. Range of motion
Measurement method Instruments used, Active & Passive Range of motion.
Total Active motion, Comparing Active & Passive motion.
6. Tightness of Muscles and other soft tissues of hand.
7. Selective tissue tension testing.

8. Inert structure Assessment.
9. Contractile structure Assessment.
10. Circulatory Assessment.
11. Nerve compression.
12. Assessment of Clinical Finding.
13. Strength - Evaluation :
Specific Muscle testing, Functional strength Evaluation.
14. Sensibility Assessment :
 - a. Guideline for performing sensibility testing.
 - b. Sensory Innervations, Density test, Threshold test, Stress test.
 - c. Assessing Nerve compression
 - d. Seimmes – Weinstein monofilaments Discrimination testing.
 - e. Vibrometry
 - f. Electro diagnostic studies
 - g. Sensory Nerve conduction studies
 - h. Static and Moving Two point – Discrimination testing.
 - i. Co-relating sensibility with hand functions.
 - j. Functional Evaluation of the hand
Clinical Reasoning and the Functional Evaluation , Assessment of functional patters of process of the hand.
15. Methods of Functional Evaluation
Questionnaires, Interview, Observation. Hand Activities testing, Standardized and non-standardized Functional tests, Bennett hand tool test, Box and Block test, Gow ford small parts Dexterity test, Jebsen – Taylor Hand Function test, Minnesota Rate of Manipulation test, Nine – Hole peg test, Pordoe Pegboard test, Valpar work samples.
16. ADL Evaluation.

M.P.T. IN HAND CONDITIONS

PAPER – VIII

PHYSIOTHERAPEUTIC INTERVENTION

1. Surgical and PT Management of tendon injuries.
2. PT Management of Nerve Injuries.
3. Crushed Hand - It's management.
4. Burns – Hand. It's management.
5. Rheumatoid hand.

6. Hand in Hansen's disease.
7. Spastic hand management.
8. Vascular lesion of hand and its management.
9. Rehabilitation of Amputees.
10. Reconstruction of thumb and fingers and its management.
11. Orthoplasty and its Rehabilitation.
12. Functional re-education (including sensory, motor and vocational training) of the above conditions.
13. Orthosis and for hand – principles of design, fabrication and uses.
14. Prosthetic hand.

Reference :

1. Hand rehabilitation – Clark W
2. Hand rehabilitation – Toubiana
3. Hand Rehabilitation – Wyn Parry (Butterworths)
4. The Hand : Principles and techniques of splint making in rehab. – Barr.N.R (Butter Worths)
5. Hand pain and impairment – R. Caillet (F.A.Davis & co)

MPT IN OBSTETRICS & GYNAECOLOGY

PAPER – V

ANATOMY, PHYSIOLOGY & PATHOMECHANICS

1. Obstetrics & Gynaecology in Broad perspective.
2. Anatomy & Physiology of Reproductive system of women.
3. Pregnancy: Overview and Diagnosis: Ovarian Function and Ovulation
4. Physiology of Pregnancy: The Endometrium and Decidua: Mensuration and Pregnancy, The Placenta and Fetal Membranes.

5. Endocrine physiology related to Reproductive medicine. The Placenta Hormones.
6. Morphological and Functional Development of the Fetus.
7. Maternal Adaptations to Pregnancy:
Physiological changes in various systems during pregnancy and after delivery,
Musculoskeletal changes in detail.
8. The normal Pelvis, Pelvic Floor Muscles.
9. Mechanism of Normal labour in Occiput presentation. Conduct of Normal Labour
and Delivery.
10. The New born infant.
11. The Puerperium
12. Developmental abnormalities of Reproductive track Nutrition in Pregnancy.

MPT IN OBSTETRICS & GYNAECOLOGY

PAPER – VI

CLINICAL CONDITIONS

1. Dystocia due to Abnormalities of the Expulsive force
2. Dystocia due to Abnormalities in presentation, position
3. Dystocia due to Abnormalities in Development of the Fetus
4. Dystocia due to Pelvic contraction
5. Dystocia due to soft tissue abnormalities of the Reproductive tract
6. Injuries in the Birth canal
7. Forceps delivery
8. Breech delivery

9. Cesarean section
10. Hysterectomy
11. Episiotomy
12. Uterine prolapse, Menstrual Disorders, Pelvic Inflammatory diseases
13. Abnormalities of the puerperium
14. Puerperal Infections
15. Pregnancy of the Extreme of the Reproductive life.
16. Abortion
17. Ectopic pregnancy
18. Developmental abnormalities of the Reproductive tract.
19. Placental Disorders
20. Diseases and injuries if the Fetus and New born Infant
21. High – risk pregnancy
22. Medical & Surgical complications in pregnancy. Cardio vascular, Pulmonary, Renal and Urinal tract diseases, Gastro Intestinal disorders, Haematological, Endocrine connective tissue disorder. Sexually transmitted Diseases
23. Family Planning
24. Bladder Dysfunctions / Uro genital disfunctions

MPT IN OBSTETRICS & GYNAECOLOGY

PAPER – VII

ASSESSMENT & EVALUATION

1. Type of delivery.
2. Number of deliveries.
3. Assessment for Abdominal Muscle Power.
4. Assessment for Pelvic floor Muscle strength.
5. Assessment for pain.

6. Assessment for the Musculo – skeletal pain.
7. Assessment for diastasis recti.
8. Assessment for any Tightness / Deformities / Contractures.
9. Assessment for joint Mobility.
10. Posture Assessment.
11. Assessment for the gait.
12. Assessment – Breathing pattern.
13. Assessment in mensural Disorders.
14. Assessment in Ante natal period.
15. Assessment in Post natal period.
16. Nutritional Assessment in pregnancy.
17. Assessment in pelvic floor infection.
18. Assessment in Bladder Dysfunctions.
19. Assessment in Uterine Disorders.

MPT IN OBSTETRICS & GYNAECOLOGY

PAPER – VIII

PHYSIOTHERAPY INTERVENTION

Preparation for labour, urogenital dysfunction lifts Management.

Weak Pelvic floor muscles & its management:

Pain – Musculo – Skeletal pain during pregnancy & delivery, Pain relieving methods.

Pre – Natal & Post Natal Physiotherapy:

Conditioning Exercises, Breathing Exercises, Maintenance of Posture during pregnancy and feeding, Psychological & emotional changes & coping with demands of new born.

Exercises in non-pregnant state

Knowledge about various gynaecological conditions like uterine prolapse, stress incontinence, Menstrual disorders, Pelvic Inflammatory diseases.

Physiotherapy Management in Gynaecology Surgical Conditions:

Caesarian Section

Hysterectomy

Episiotomy

Other gynaecological Surgeries.

MPT IN COMMUNITY PHYSIOTHERAPY

PAPER – V

ANATOMY, PHYSIOLOGY, & PATHOMECHANICS

1. Anatomy of Cardio Vascular system Respiratory & Nervous System in Adults / paediatrics / geniatrics
2. Pathomechanics of Paralytic disabilities and static deformities of UL / LL & Trunk
3. Pathomechanics of Low back syndromes, Arthritic joints of UL, LL
4. Pathomechanics of Postural abnormalities, Postural abnormalities related to Industrial work.

5. Psycho – Social & Socio – Economic aspects of Community
6. Bio ethics, Ethico – moral codes of conduct in Physiotherapy ethics Population study & Epidemiological implications of Impairment, handicap & disability – Health statistics.
7. Bio statistics & Research Methodology Health administration, Management concepts as applied to physiotherapy.

MPT IN COMMUNITY PHYSIOTHERAPY

PAPER – VI

CLINICAL CONDITIONS

1. Environmental health hazards
2. Malnutrition & Early detection of disabling conditions related to Malnutrition
3. Psychosomatic disorders relevant to Physiotherapy
4. Disorders Related to Aging of Nervous System, Cardiovascular, Respiratory System
5. Recent Advances and Emerging Issues in Hansen's diseases / Tuberculosis / AIDS / Rheumatoid Arthritis

6. Occupational Lung disorder
7. High risk pregnancies
8. Classification of work, factors, affecting sustained physical work.

MPT IN COMMUNITY PHYSIOTHERAPY

PAPER – VII

ASSESSMENT & EVALUATION

1. Assessment of Public health educational methods
2. Assessment of Physical Fitness
3. Measurement of human energy Expenditure
4. Pre employment screening
5. Workers Functional capacity Assessment
6. Job task analysis
7. Assessment of work load in relation to work capacity

8. Assessment of factors affecting sustained physical work
9. Assessment of Posture
10. Orthopaedic Evaluation of UL,LL, Trunk / Cardio Respiratory Assessment
11. Geriatric / Paediatric Assessment

MPT IN COMMUNITY PHYSIOTHERAPY

PAPER – VIII

PHYSIOTHERAPEUTIC INTERVENTION

1. Steps in formulation of plan for CBR programme / implementing the programme and Evaluating the programme.
Discuss CBR module and compare it with an Institution based rehabilitation system.
2. National CBR Programmer.

3. Paediatric / geriatric populations- Need for community physiotherapy, Creating awareness of Physiotherapy in selected members of Community, Monitoring & Evaluation of Community work.
4. Community Based Rehabilitation:
Nutrition & dietics, Child care – Social preventive medicine, Immunisation Programme, Mal-Nutrition & Early detection of disabling condition & intervention.
5. Maternal Care:
Antenatal & Post Natal Physiotherapy, Educated Child Birth, Post – Natal Complication & prevention of postural defects, Fitness programme.
6. Industrial Physiotherapy:
Prevention of Injuries, Physiologic Restoration, Rehabilitation in industrial Injuries.
7. Care of Aged:
Geriatric Physiotherapy Life Span, Yoga & Similar.
8. Psychosomatic approach in the management of disorders of chest:
Change in lifestyle to minimize risk factors for disability, Drug Independence & Lontrogenic disorders.

Table – III

Model checklist for evaluation of journal review presentations

Name of the student: _____

Sl.No.	Items for observation during presentation	* Grade
1	Article chosen was	
2	Extent of understanding of scope & objectives of the paper by the candidate	
3	Whether cross reference have been consulted	
4	Whether other relevant publications consulted	
5	Ability to respond to questions on the paper / subject	
6	Audio – visual aids used	
7	Ability to defend the paper	
8	Clarity of presentation	
9	Any other observation	
	Total score / Overall grade	

* Corollary for Grade 0 – Poor 1 – Below Average 2 – Average 3 – Good 4 – Very Good
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Check List For Evaluation of journal review presentations:

Sl.No.	Date	Topic of journal review presentation	Grade	Signature of Guide

Table – IV

Model checklist for evaluation of Seminar presentations

Name of the student: _____

Sl.No.	Items for observation during presentation	* Grade
1	Whether other relevant publications consulted	
2	Whether cross reference have been consulted	
3	Completeness of preparation	
4	Clarity of presentation	
5	Understanding of subject	
6	Ability to answer questions	
7	Time scheduling	
8	Appropriate use of audio-Visual aids	
9	Overall performance	
10	Any other observation	
	Total score	

* Corollary for Grade 0 – Poor 1 – Below Average 2 – Average 3 – Good 4 – Very Good
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Check List For Evaluation of journal review presentations:

Sl.No.	Date	Topic of journal review presentation	Grade	Signature of Guide

Table – V

Model checklist for evaluation of clinical work

Name of the student: _____

Sl.No.	Points to be considered	* Grade
1	Regularity of attendance	
2	Punctuality	
3	Interaction with colleagues and supportive staff	
4	Maintenance of case records	
5	Presentation of cases during rounds	
6	Investigations work up	
7	Beside manners	
8	Rapport with patients	
9	Treatment approaches & techniques	
10	Over all quality of ward work	
	Total score	

* Corollary for Grade 0 – Poor 1 – Below Average 2 – Average 3 – Good 4 – Very Good
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Check List For Evaluation of journal review presentations:

Sl.No.	Date	Topic of journal review presentation	Grade	Signature of Guide

Table – VI

Model checklist for evaluation of Clinical presentations

Name of the student: _____

Sl.No.	Points to be considered	* Grade
1	Completeness of history	
2	Whether all relevant points elicited	
3	Clarity of presentation	
4	Logical order	
5	Mentioned all positive and negative points of importance	
6	Accuracy of general physical examination	
7	Whether all physical signs elicited correctly	
8	Whether any major signs missed or misinterpreted	
9	Diagnosis: whether it follows logically from history and findings	
10	Investigations required: special Tests	
11	Total score	
12	Means	
13	Treatment Techniques	
14	Others	
	Grand Total	

* Corollary for Grade
0 – Poor
1 – Below Average
2 – Average
3 – Good
4 – Very Good

Table – VII

Model checklist for evaluation of Teaching Skill Practice

Name of the student: _____

Sl.No.	Points to be considered	* Grade
1	Communication of the purpose of the talk	
2	Evokes audience interest in the subject	
3	The introduction	
4	The sequence of ideas	
5	The use of practical examples and / or illustration	
6	Speaking style (enjoyable, monotonous, etc; specify)	
7	Attempts audience participation	
8	Summary of the main points at the head	
9	Asks questions	
10	Answer questions asked by the audience	
11	Rapport of speaker with his audience	
12	Effectiveness of the talk	
13	Uses A V aids appropriately	
	Total score	

* Corollary for Grade 0 – Poor 1 – Below Average 2 – Average 3 – Good 4 – Very Good
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Check List For Evaluation of journal review presentations:

Sl.No.	Date	Topic of journal review presentation	Grade	Signature of Guide

Table – IX

Model Continuous Evaluation of Dissertation work By Guide

Name of the student: _____

Sl.No.	Items for Observation during presentation	* Grade
1	Periodic consultation with guide	
2	Regular collection of case material	
3	Depth of analysis / discussion	
4	Departmental presentation of findings	
5	Quality of final output	
6	Others	
	Total score	

* Corollary for Grade

0 – Poor

1 – Below Average

2 – Average

3 – Good

4 – Very Good

Check List For Evaluation of journal review presentations:

Sl.No.	Date	Topic of journal review presentation	Grade	Signature of Guide