1) GOALS OF THE COURSE:

a) To prepare a postgraduate student towards professional autonomy with self-regulating discipline.

b) To form the base of professional practice by referral as well as first contact mode using evidence based practices.

c) To impart knowledge of research principles in order to validate techniques and technology in practice of physiotherapy.

d) To acquaint a student with concept of quality care at the institutional as well as at the community level.

e) To inculate appropriate professional relationships in multi-disciplinary set up, patient management and co-partnership basis.

f) To prepare students to address problems related to health education and community physiotherapy.

g) To practice the concept of physiotherapy morals and ethics of the profession.

h) To provide experience in clinical training and undergraduate teaching.

i) To prepare a postgraduate to be competent and provide quality services to the community.

2) NOMENCLATURE OF MPT DEGREE COURSES:

The nomenclature of various MPT degree courses provided is as follows:

a) MPT in Neurology.

b) MPT in Orthopedics.

c) MPT in Cardiovascular & Pulmonary specialties

d) MPT in sports.

3) ELIGIBILITY FOR ADMISSIONS:

Candidates who have passed BPT degree from NTRUHS or BPT or B.Sc. (PT) degree from any other university in India or abroad recognized as equivalent by NTR UHS with not less than 50% of marks in aggregate are eligible. Candidates possessing the degree from universities other than NTRUHS must produce the equivalency certificate issued by NTR University of Health Sciences, Andhra pradesh, Vijayawada. The candidate has to make the application to the university with the following documents along with the prescribed fee.

a) Provisional Idegree certificate of BPT or B.Sc. (PT) issued by the respective university .

b) Marks card of all the university examinations passed.

c) Official transcript issued by the college luniversity.

4) REGISTRATION:

Candidates should obtain the eligibility certificate before the last date for admission as notified by the university.

A candidate who has been admitted to the MPT course should register his Iher name in the university \Nithin a month of admission, paying the registration fee and submitting the registration form through the Principal of the college.

5) DURATION OF THE COURSE:

The duration of Master of Physiotherapy course shall be two continuous years on full time basis.

6) MEDIUM OF INSTRUCTION:

English will be the medium of instruction for the subjects of study and for the examination of the M.P. T courses.

7) COURSE OF STUDY:

Course of Study: The course of study, subjects, and teaching schedule for first and second years is shown separately in the following tables.

S.No	Paper	Subject	Theory	Practicals/Clinicals	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.	V	** Journal Clubs,Seminars, Case presentation, special clinics Teaching,filled work etc.		150	150
6.	VI	Dissertation		50	50
7.	VII	Clinical Training		550	550
				Total	1425

*Basic Sciences ---- Anatomy — Theory — 40 hrs, Practical --- 35 hrs // Physiology -- Theory – 40 hrs, Practical – 35 hrs// BioMechanics – Theory – 50 hrs, Practical – 20 hrs // Physiotherapy education and practice – 50 hrs.
** Journal club – 20 hrs// seminars – 15 hrs// clinical presentations – 25 hrs [25 cases]// Special clinics – 10 hrs// field visits – 30 hrs [5-6 visits/year]// Teaching UG Students – 50 hrs.

Elective Basics Theory -Anatomy -35 hours// Physiology -35 hours// Pathomechanics -30 hours// Practicals / Clinicals -Anatomy -20 hours// Physiology -20 hours// Pathomechanics -10 hours.
..Journal club -20 hrs.// seminars -15 hrs/! clinical presentations-25 hrs [25 cases]!/ special clinics-10 hrs// field visits-30hrs [5-6 visits/year]// Teaching UG students -50 hrs.

8) METHOD OF TRAINING:

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The training of the student for MPT degree shall be on a full time pattern with graded responsibilities in the management treatment of patients entrusted to his/ her care. Training should include involvement in laboratory, experimental work and research studies .The participation of students in all facets of educational process is essential. Every candidate should take part in seminars, group discussions, clinics, journal review meetings and other continuing education activities. Every candidate should be required to participate in the teaching and training programs of undergraduate students.

9) MONITORING PROGRESS OF STUDIES (internal monitoring):

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring be done by the staff of the department based on participation of students in various teaching /Iearning activities. It may be structured and assessment is done-using checklists that assess various aspects. Model checklists are given in Table III to IX at the end of the syllabus.

Log Book: Every candidate shall maintain a Log Book and record his/her participation in the training programmes conducted by the department such as journal reviews, seminars, etc.

Special mention may be made of the ‘presentations by the candidate as well as details of clinical or laboratory procedures, if any conducted by the candidate.

Periodic tests: The collage may conduct two tests, one of them may be three months prior to conduct of first year university exam and the second test may be three months before the final examination. The test may include theory, practical/clinical and viva voice in the pattern of university examination. Records and marks obtained in such tests will be maintained by the Head of the Department and sent to the University, by the principal when called for.

10) ATTENDANCE: !.

A candidate is required to attend a minimum of 80% of training and the total classes conducted during each academic year of the MPT course. Provided further, leave of any kind shall not be counted as part of academic term without prejudice to :";linimum 80%of training period every year. Any student who fails to complete the course in this matter shall not be permitted to appear for the University examinations with that batch.

11) DISSERTATION:

Every candidate pursuing MPT degree course is required to carry out work on a selected research project under the guidance of a recognized postgraduate teacher. The results 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 identification 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 registrar (academic) of the university in the prescribed proforma, a synopsis containing particulars of proposed dissertation work within six months from the date of commencement of the course on or before the dates notified by the university. The synopsis shall be sent through the proper channel.

Such synopsis will be reviewed and the university will register the dissertation topic. No change in the dissertation topic or guide shall be made prior approval of the university

The dissertation should be written under the following headings:

1) Introduction
2) Aims or objectives of study
3) Review of literature
4) Material and methods
5) Results
7) Conclusion ,"
8) Summary ~:
9) References
10) Tables
11) Annexure " .

6) Discussion re

Guidelines:
I. The topic for dissertation should be related to the specific specialty selected for MPT programme.
II. Dissertation should have word limit of 12,000 words. (10% either upper or lower is accepted).
III. The number of words of the text should be mentioned at the end of the dissertation.
IV. The written 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.
V. The guide should certify the dissertation.
VI. Four copies of dissertation thus prepared shall be submitted to the registrar (examination), three months before final examination on or before the dates notified by the university.
Approval of dissertation work is an essential precondition for a candidate to appear in the final university examination. The evaluator apart from the guide out of which either is external outside the university or other postgraduate college of this university shall value tlid dissertation.
12)GUIDE:
The academic qualification and teaching experience required for recognition by this university for postgraduate teacher for guiding MPT candidates shall be:
a) MPT/ M.SC. (PT) with five years teaching experience working on a full time position in an institution recognized by NTRUHS.
,b) The age of teacher /guide shall not exceed 58 years.
c) The guide student ratio shall be 1:2
d) Not withstanding above, in view of acute shortage of teachers the teachers having three years teaching experience after MPT and working on a full time basis should be considered as PG teachers for a period of three years (i.e, upt02006).
Co-Guide: May be included provided the work requires substantial contribution from a sister department or from another medical institution recognized for teaching/training by NTR University of Health Sciences. The co-guide shall be a recognized postgraduate teacher of NTR University of health sciences.
13)CHANGE OF GUIDE:
In the event of a recognized guide leaving the college for any reason or in the event of death of guide, guide may be changed with prior permission from the University.
14)Readmission after break of Study:
If a student absents continuously for a period of 91 days or more but less than one year and seeks permission to attend the course, his/ her application shall be forwarded to tl'le registrar with the recommendation of the Principal while permitting the candidate to attend the course pending Vice-Chancellor's approval. ;If the Vice-Chancellor is satisfied of the reasons, he may grant leave of absence attaching such conditions as he may deem necessary.

Candidates who are absent for continuous period of one year or more without permission shall be deemed to have forfeited the admission to the course and his I her studentship shall stand cancelled without any further notice. If a candidate wants to be readmitted after one year of unauthorized absence, his application may be forwarded to the

Vice-Chancellor, which will be considered on individual basis by the Executive Council of the University.

15) 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

Pp.PER 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 carries 100 marks.

Practicals & Viva

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

1ST YEAR

PHYSIOTHERAPEUTIC -1- Practical-100 marks and Orals -50 marks

PHYSIOTHERAPEUTIC -11- Practical-100 marks and orals -50 marks

2ND YEAR

PAPER VII: ASSESSMENT AND EVALUATION -ELECTIVE -

Assessment & 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 -

Assessment & Evaluation -Elective

Practfcals -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 PaDer I

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

Essay: 4 essays carrying 20 marks each 4X20=80

[One essay from each subject]

4 short notes carrying 5 marks each 4X5=20

[One short note from each subject] 100 marks

Model Question PaDer Pattern for Paper II

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

Essay: 4 essays carrying 20 marks each 4X20=80

[Two essay from each subject]
4 short notes carrying 5 marks each 4X5=20
[two short note from each subject] -
100 marks

Model Question Paper Pattern for PaDer 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 3X20 = 60
Short notes: 5 short notes carrying 8 marks each. 5X8 = 40
100 marks

Model Question PaDer Pattern for PaDer 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: 3essays carrying 20 marks each 3X20=60
[One essay from each subject]
5 short notes carrying 8 marks each 4X5=20
[Two short notes from Anatomy, two]
From physiology and one from 100 marks
Pathomechanics

-

16) EXAMINERS (Practical):
There shall be two examiners in each subject. One of them shall be external from the other postgraduate institute affiliated to NTRUHS or other out of the state postgraduate institute recognized by NTRUHS, and the other shall be internal from the same college.
17)COMMENCEMENT OF COURSE:
The course shall commence from 1st July of academic year
18) CRITERIA FOR DECLARING AS PASS IN UNIVERSITY EXAMINATION:
A candidate shall secure not I.ess than 50% marks in each of theory, practical examination (including clinical and oral) and dissertation. A candidate securing less than 50% of marks shall be declared to have failed in the examination. Failed candidate can appear in any subsequent examination.

19)CLASSIFICATION OF RESULTS

[J Second class -50% and above but less than 65% of total marks.

[J First class -65% and above but less than 75% of total marks and having passed the examination in first attempt.

[J Distinction -75% and above of total marks and having passed the examination in first attempt.

20)MIGRATION & TRANSFER OF CANDIDATES

Migration & Transfer of candidates from one affiliated institution to another institution of this university or from another university will not be generally considered.

21)PROMOTION RULES

A student can carry all the first year papers to final year if he/she has failed and can appear for all the exam papers together

SYLLABUS

PAPER-I

BASIC SCIENCES

BASIC ANATOMY

1. Anatomy of Musculo-skeletal system.[Osteology, Myology, Arthrology]
2. Anatomy of Cardio-Pulmonary system [Structure of Heart, Structure of Lung, Broncho Pulmonary segments].
3. Anatomy of Nervous system [Dermatomes and myotomes, Cerebrum and cerebral hemispheres, cerebral cortex, Cerebellum and its connections, Brian stem -Mid brain, pons, medulla.
4. Structure of Kidney
5. Structure of Bladder.

References

.Grays anatomy,
.Derek: Anatomy, palpation and surface marking,
.Sieg: Illustrated essentials of musculoskeletal anatomy,
.Nigel: Anatomy and human movement,
.Chaitow: Palpation skills assessment & diagnosIs through touch.
.Moffat: Anatomy & Physiology for Physiotherapists,
.Textbook of Anatomy by T.S.Ranganathan,
.Textbook of anatomy & physiology by Tora Tora
.Textbook of anatomy by B.D.Chaurasia
.Williams Peter Late: Gray's Anatomy the Anatomical basis of Medicine and surgery, 38 Edi 1995.
.Lumely John S.P: Surface Anatomy. The anatomical basis of clinical examination,

2nd Edi 1996.
.Anatomy and Human movement-Palastanga
BASIC PHYSIOLOGY
1. Physiology of Musculo-skeletal system.
2. Physiology of Cardio-pulmonary system.
3. Physiology of nervous system.
4. Physiology of bladder and Bowel.
Reference:

.Kapandji: The physiology of the joints Vol I & II & III,
.Moffat: Anatomy & Physiology for Physiotherapists,
.Robert: Fundamentals of Sensory Physiology
.Guyton: Textbook of physiology.
.Chatterjee: Textbook of physiology.
.

BIOMECHANICS
1. Basic Mechanics I
2. Basic physical properties of bone, cartilage, muscle, tendons, ligaments, joints.
3. Kinetics and kinematics of individual Joints of Upper Extremity, Lower extremity, Vertebral column, Ribs, Pelvis.

Reference:
.Paul: Three-dimensional analysis of human movement,
.Charles: The neuroscience of human movement,
.White & Punjabi: Clinical Biomechanics of spine,
.Vladimir: Kinematics of human motion,
.Hinkle: fundamentals of anatomy and movement, a work book and guide,
.Nigel: Anatomy and human movement,
.Hamil: Biomechanical basis of human movement
.Palastanga: Anatomy and Human movement,
.Hamil: Biomechanical basis of human movement,
.Kapandji: The physiology of the joints Vol I & II & III,
.Smidt: Gait in rehabilitation,
.Edward: Biomechanics of spine stabilization,
.Adrian: biomechanics of human movement,
.Rose: Human walking,
.Peter: Biomechanics of sport & exercise,
.Whiting: Biomechanics of musculoskeletal injury.
PI-!YSIOTHERAPY EDUCATION AND PRACTICE
Physiotherapy Ethics:
1. Morals and ethics.
2. Ethical issues in Physiotherapy.
3. Moral problems and the ethical analysis of these problems.
4. Indian Association of Physiotherapists -Rules, regulations, framework, aims and objectives.
Physiotherapy and Law:
I Medicolegal aspects of Physiotherapy, liability, negligence, malpractice, Licensure,
‘“ workman’s compensation.
Physiotherapy Education:
1. Aims of Physiotherapy Education.
2. Concepts of teaching and learning: a) Theories of teaching b) relationship between teaching and learning c) psychology of education d) Motivational process of learning, perception, individual differences, intelligence, personality.
3. Principles and methods of teaching: a) Strategies of teaching b) planning of teaching c) Organization d) writing lesson plans e) Audio-visual aids. f) Teaching methods.
4. Guidance and counseling: Principles and concepts, guidance and counseling services of students and faculty.
Practical:
1. Design a curriculum for a basic Physiotherapy Programme.

2. Prepare a lesson plan and conduct classes.
3. Construct a written objective type test for the lessons you have taken.
4. Prepare a plan for evaluating the students.
5. Internal assessment tests in all topics.
6. Lectures and seminars.

Reference.

.Catherene: Hand book of teaching for physical therapists,
.Barbara: Ethics in rehabilitation,
.Joy: clinical reasoning in the health professions,
.John: the use of counseling skills.

PAPER-II

810ST A TISTICS & 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 date: -
   - 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 interquartile range.
   - Frequency tables Various types of graphs, obtaining graphs using statistical software's like Excel, Miritah,

5 plus.

3. Probabilities and proportion

a Introduction to probability and proportions

4. Discrete random variables

a Binomial distribution

a Expected value for the mean and standard deviation

5. Continuous random variables: -

a Normal distribution, 2 score

a Obtaining normal distribution probabilities from tabular and statistical software's.

6. Sampling distribution of estimates:-

a Parameters and estimates

a Sampling distribution of sample proportions

a Standard errors of differences

a Student's t-distribution

7. Confidence intervals:-

a Confidence intervals for mean

a Confidence intervals for proportions

a Confidence intervals for difference between mean.

a Confidence intervals for difference between proportions

a Obtaining confidence intervals using statistical software like excel, minitals, 5 plus

I8. Significance testing: -
a Difference between tests and Intervals
t' a Types of Hypothesis -Research hypothesis, Null hypothesis, -t tests and P
E, values.
a Distinction between statistical and clinical significance.
9. Tables of counts: -
a One-dimensionai tables: -Chi-square test for goodness of fit, tables for the chi-square distribution.
a Two-way tables of counts -Chi-square test of homogeneity chi square test of independence, 2 x 2 tabler, validity of chi square test.
a Performing chi square test using statistical software like Excel, Minitah, splus
10. Data on a continuous variable:
a One way analysis of variance and the f-rest
a The f-test and analysis of variance table
11. Relationship between quantitative variables: Regression and correlation:-
a Correlation versus regression
a Relationship modeling: The straight line, exponential curve.
a Inference for the simple linear model -Inferences about slope and intercept, regression model and prediction, model checking.
a Correlation and association: Two regression lines, correlation co-efficient.
RESEARCH METHODOLOGY
Objectives
a To become familiar with the importance of Research in Physiotherapy.
a To understand the conceptual, empirical and interpretive phases of research.
a To develop the skill needed to read published research critically.
a To develop the skills to conduct research.
a To develop the skills to write research reports
INTRODUCTION TO RESEARCH
a The importance of Research in Physiotherapy. Physiotherapy Research: Past, Present and Future. Paradigms: The positivist paradigm and the naturalistic paradigm.
a Ethical considerations in Physiotherapy Research.
Introduction to the conceptual, empirical and interpretive Quantitative and Qualitative Research: phases of research.
CONCEPTUAL PHASE
1. Formulation of the problem: Basic terms relating to research problems. Development and refinement of Research problems.
a Communicating the Research problem, purpose and questions.
Y Concepts and variables: Phenomena. concepts and constructs
a Theory. Variables: Dependent variables and independent variables. operational definitions of variables.
3. Literature Review and theoretical basis:
a Purpose and use of literature review. Locating relevant literature for a review: use of electronic databases like Medicine, CINAHL, AL T HEAL THWATCH etc. Preparing written literature reviews.

[] Reading and using existing research 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.
EMPIRICAUCONDUCTING 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 Experimental Research: Non equivalent control group design, time series design, advantages and disadvantages of quari 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 out99—rnes~h.
[] 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.
Y Population and sample:
Populations: Target population, accessible population.
[] Sampling rationale.
[] Nonprobability 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 internal validity: History, selection maturation, mortality, testing, 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.
Biophysiologic measures: In vivo measures, in vitro measures, advantages and disadvantages of Biophysiologic measures.
Measurement and assessment of quantitative data

D Measurement: Errors of measurement.
D Readability of measuring instruments: stability, internal consistency, and equivalence.
D Validity of measuring instruments: content validity, criterion related validity, construct validity.
D Assessment of qualitative data: Credibility: Prolonged engagement and persistent observation, triangulation, peer debriefing and member cheeks, searching for disconfirming evidence.
D Dependability
D Conformability
D Transferability
6. Research data and Analysis:
D Analysis of quantitative data: Descriptive statistics: Frequency distributions, central tendency, variability, bivariate descriptive statistics -contingency tabler and correlation.
D Inferential statistics:- Sampling distributions hypothesis testing, type I and II errors,

level of significance, statistical significance, parametric and Nonparametric tests, t-tests, A nova, chi squared test, correlation co-efficient, regression, ANCOV A.

I\I'Jte:

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.

D Qualitative data management and organization -categorization, coding.

D Overview of grounded theory analysis, phenomenological analysis.

INTERPRETIVE PHASE

Discussion and conclusions: Interpreting quantitative results: Interpreting hypothesized significant results, interpreting nonsignificant results, interpreting unhypothanised significant results, interpreting mixed results.

c Interpreting qualitative results.

CRITIQUING PUBLISHED RESEARCH

D Need for critjquing research

D Guidelines for critiquing research

WRITING RESEARCH FOR PUBLICATION

c 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 httD://www.aDastvleauide.org plagiarism and copyright laws.

Reference:

.Carolin hicks research for physiotherapist
.Methods in Biostatics B.K.Mahaja
.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

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.

(J 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 Electronic Traction
and Continuos. Iontophoresis
Microwave Diathermy Pulsed Interferential Therapy
and Continuos. Trancutaneous Electrical Nerve
Ultrasonic Therapy. Stimulation.
Ultraviolet Therapy Electrical Stimulation -Faradic,
Infrared radiation. Galvanic.
Laser Therapy Dynamic currents.
Paraffin Wax Bath. Continuos Passive Motion.
Cryotherapy Fluidotherapy
Moist heat therapy Electro Myo Gram.

Contrasts bath Biofeedback.
ELECTRO PHYSIOLOGY
(J Excitable tissue -Nerve
Excitation and conduction
Measurement of electrical events.
Ionic basis of excitation and conduction
Physiologic basis of nerve conduction tests.
(J Excitable tissue -Muscle
1. Skeletal Muscle: Electrical phenomena and ionic fluxes, contractile responses, physiological basis of Electromyelogram [EMG].
2. Cardiac Muscle: Electrical properties, Electro cardio gram [ECG], and physiological basis of ECG.
3. Smooth Muscle: Electrical properties
(J 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. ~
.
tory of clinical neurophysiology.
introduction to electro diagnostic signals and their measurements.
ve conduction study
1.1 Principles of nerve conduction study At
1.2 Median nerve The use G
1.3 Ulnar nerve particular!
1.4 Radial nerve suitable fOI
1.5 Brachial plexus
1.6 Cervical radiculopathy Ad
1.7 Lumbar plexus and its terminal branches Exercise 11
,.8 Sacral plexus and its terminal branches
,.9 Lumbosacral Radiculopathy [In practica
,.10 Anamolous innervation of the extremities and eviden
,.11 Nerve conduction of nonlimb nerves discussion.
,.12 Late responses
‘- 13 Autonomic nervous system testing 1. StartinG
2. Movemt
;tromyography Manipul
.1 Introduction to electromyography movemE
.2 Technique of electromyography 3. Resistec
4. Aerobic
lical application of electromyography and nerve conduction 5. Manual I
.1 Electromyographic findings in neurological disorders 6. Joint Mo
.2 Nerve conduction and EMG studies in polyneuropathies 7. GoniomE
8. Suspens
>etitive nerve stimulation 9. Mobility ~
10. Relaxatic
gle fibre and macro electromyography 11. Function,
12. Proprioce
Jal evoked potential 13. Swiss Bat
instem auditory evoked potential 14. Gait traini
natosensory evoked potentials 15. Posture.
:or evoked potential 16. Strengthe
17. Endura,.

Ice: 18. Power.
Low and reed: Electrotherapy explained 19. Isometric,
Nelson: clinical electrotherapy 20. Stretching
Claytons: electrotherapy 21. Hydrotherc
Kimura: electro diagnosis in disease of nerve and muscle. 22. Breathing t
Kerb: Bio feedback 23. Exercise “n
Joseph khan: Electrotherapy explained I) Shoulder
Meljacker and wall: Text book of pain wall mOIl
Prentice: Therapeutic modalities and sports medicine coordinat
Bernadette: physical agents a comprehensive test for physical therapists, circun”td61

PAPER-IV

PHYSIOTHERAPEUTIC -II

[Exercise therapy and its recent advances including Exercise Physiology]

EXERCISE THERAPY AND IT’S 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 exercise in a specific condition, able to justify how the selected exercise is suitable for the 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, examiner 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 I 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:

I) 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,

II) Multiple exerciser
III) Cycle Ergometer.
IV) Tread mill -Computerized, Motorized, Manual
V) Stepper
VI) Twister
VII) Ramp for gait training, stair case training
VIII) Rowing machine
IX) Thera bands.
X) Pedo cycle
XI) Tilting table
XII) Peg board
XIII) Re-education board
XIV) Quadriceps board
XV) Multi purpose Cervical Chair.
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 attitude
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

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ELECTIVES
MPT in ORTHOPEDICS
PAPER-V
ANATOMY AND PHYSIOLOGY AND PATHOMECHANICS
~\ {t , ~1.Embryological development of rnusculoskeletal system.
2.0steology: Structure of bone, ossification of bones, Skull bones, Facial bones, Bones of Upper Extremity, Lower 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.
~Arthrology: Structure of joint, types of joints, detailed structure and formation of all ll?/4"~V',:;ti; the joints. Neurobiology of joint
o-t 5.Neurology: Peripheral Nerves; Dermatomes and myotomes.
Physiology: Joint physiology [Movements], muscle physiology.
Pathomechanics of Fractures, deformed joints.
MPT in ORTHOPEDICS
PAPER -VI
CLINICAL CONDITIONS
Causes, Clinical Features, pathophysiology, general investigation [blood test, serum, creatinine, etc], Medical and surgical management of the below mentioned conditions:
I) 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, sub-talar joint.
C) Spine~ Fractures and dislocation I subluxation of vertebrae.
D) 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, juvenile rheumatoid arthritis.
V) Deformities: of Upper limb, lower limb and spine.
VI) Plexus and peripheral nerve injuries.
VII) Arthropathies: Spondylitis, spondylolesthesis, spondylosis, ankylosing Spondylitis.
VIII) Metabolic diseases 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 facitls, 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
The student should know the latest advances in orthopedic surgical procedures.
MPT in ORTHOPEDICS
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
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 Assessment, 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
9. 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.
10. Pelvis
Patient History, Observation,
Examination: Active movements, Passive movements, Resisted Isometric Movements, Functiona! Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint play Movements, Palpation, and Diagnostic Imaging.
11. 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.
12. 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.
13. 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.

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14. Assessment of Gait
Normal Patterns of Gait :Stance 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: Locomotion 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, Hemiplegic or Hemiparetic Gait, Parkinsonian Gait, Plantar flexor Gait, Psoatic limp, Quadriceps Gait, Scissors Gait, Short Leg Gait, Steppage or Drop Foot Gait.
15. 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
16. Assessment of the Amputee
Levels of amputation
Patient History, Observation,
Examination: Measurements related to Amputation, Active movements, Passive movements, Resisted Isometric Movements, Functional Assessment, Sensation Testing, Psychological Testing, Palpation, Diagnostic Imaging.
17. 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
I) 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, sub-talar joint.
C) Spine: Fractures and dislocation I subluxation of vertebrae.
D) 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 li~b and spine.
VI) Plexus and peripheral nerve injuries.
VII) Arthropathies: Spondylitis, spondylolesthesis, spondylosis, ankylosing Spondylitis.

VIII} Metabolic diseases 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.
/\:VIII} 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
Student is expected to learn the latest developments in the assessment and evaluation protocols used in orthopedic physiotherapy.

MPT in ORTHOPEDICS

PAPER-VIII

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
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, sub-talar joint.
C) Spine: Fractures and dislocation / subluxation of vertebrae.
D) 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 diseases of bones, Osteopenia, Rickets, Osteomalacia, Osteoporosis.
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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.
Apart from the above student should learn- Basic concept of orthopedic manual therapy,

orthotics & prosthetics, spinal braces & corsets.

Reference:

.Goodman: pathology implications for the physical therapist, ‘t,
.Barbara: muscles, nerves and movement kinesiology in daily living, ‘r;.
.Karen: physiotherapy in orthopedics I:~;
.Loth: Orthopedic review for physical therapist,
.Malone: Orthopedic and sports physical therapy,
.Brotzman: clinical orthopedic rehabilitation,
.Magee: orthopedic physical assessment,
.Konin: special tests for orthopedic examination,
.Loudon: clinical orthopaedic assessment guide,
.Reider: the orthopaedic 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 -Textbook of Orthopaedic for Physiotherapist
.Orthopaedic Textbook by G.S.Kulkari
.Cash textbook of Orthopedics
.Orthopaedic Assessment -Magee
..Saunder’s manual of physical therapy
.Low back pain-handbook herring
.Textbook of Orthopedics abnezar
.Amputation and prosthetics may
.Musculo Skeletal physiotherapy
.Orthopaedic physical examination -Robert Donatelle
.Orthopaedic examination-Macre
.Old Tidy’s for physiotherapists.
.Jenny: pain- a text book for therapist.

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MPT in NEUROLOGY

PAPER-V

NEUROANATOMY AND NEUROPHYSIOLOGY. PA THOMECHANICS

N&URO ANA TOMY:

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.
I) Basal ganglia and its connections.
m) Ventricular systems and CSF.
n) Blood brain barrier.
0) Spinal cord, tracts -ascending, descending.-' HI:='~'
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 system.

NEURO PHYSIOLOGY

Functions of all the organs mentioned below.
a) Coverings of the nervous system.
b) Nerve fibres.
c) Cerebrum and cerebral hemispheres, cerebral cortex.
d) Cerebellum and its connections.
e) Brian stem -Mid brain, pons, medulla.
f) Thalamus. hypothalamus -connections.
g) Limbic system, reticular formation.
h) Internal capsule, corpus striatum.
i) 4 Basal ganglia and its connections.
j) Ventricular systems and CSF.
k) Blood brain barrier.
I) Spinal cord, tracts -ascending, descending.
m) Peripheral nervous system.
n) Autonomic nervous system.
0) 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) Physiologica) basis of motor learning and recovery of functional motor Control.

PATHOMECHANICS

The student should get well acquainted with the pathomechanics of. ~ndividual 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 Neoplasams:

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, Ischeamic 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 neuone disease, Amyotrphic lateral sclerosis.

Progressive bulbar palsy, Alzheimer's disease.

Cerebral palsy

Spina bitida

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 a specific condition. 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 Ashworth scale for spasticity
vii) Isometric muscle strength.
viii) Motor neuron disease I 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
ctivities of daily living and extended ADL tests
i) Barthel ADL index
ii) Katz ADL index

iii) Nottingham ten point ADL index
iv) Rivermead ADL scaie
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 score for multiple sclerosis

Stroke scales
i) Mathew stroke scale
ii) National institute of health stroke scale
iv) Candlan Neurological scale
v) Orgogozo Score
vi) Hemispheric stroke scale i
vii) Clinical classification of stroke [Bamford]
viii) Allen score for prognosis of stroke
ix) Guy's hospital score for haemorrhage 'i
I) Head injury
i) Galveston orientation and amnesia test
ii) Rappaport disability rating scale
J) Parkinson's disease .,
Columbian rating scale I
ii) Parkinson's disease Impairment index, disability index
iii) Hoehn and Yahr grades
iv) Unified Parkinson's diseases rating scale version 3. c"",
K) Spinal cord injury
i) Frankel's scale
ii) Motor index and sensory indices ,.,
iii) American spinal cord injury association assessment chart.
L) Pain assessment & evaluation.
Investigation 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

Student 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 Roods accroach etc. Student 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 Neoplasams:

Gliomas, Meningiomas, Neuromas, Angiomas, Crania-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, Ischeamic stroke infarction, thrombo-embolic stroke

Hemorrhagic stroke, Transient ischaemic attack, Arteria-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 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.

Reference:
.Goodman: pathology implications for the physical therapist,
.Barbara: muscles, nerves and movement kinesiology in daily living,
.Greame: clinical neurology,
.b Brandt: neurological disorders course & treatment.
Brains: disease of the nervous system.
.Shirley: diagnosis, treatment of movement impairment syndromes,
.Richard: neurological rehabilitation,
.Susan: neurological physiotherapy,
.Helen: Neuroscience of rehabilitation
.Wade DT 1992,assessment in neurological rehabilitation, oxford press.
Omer: management of peripheral nerve problems,
Darcy: neurological rehabilitaion,
.Gerald: evaluation & treatment of chronic pain,
.Alfred: early diagnosis & therapy in 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,
.Anne: motor control theory & practical application,
.Jenny: pain- a text book for therapist,
.Harriet: chronic pain management for physical therapist,
.Janet: a motor relearning programme for stroke,
.Randolph: prognosis of neurological disorders,
.Fitzgerald M.J.I: Neuro Anatomy Basic & clinical 3rd Edi 1996
.Rnieuwenhuys J.Voogd Ch.Van Huijzen: The human central Nervous System
.Netlers Atlas: Neuro Anatomy 1976
.Andre E Parent carpenters Human: Neuro Anatomy, 9th Edi 1996
.Snell Richards clinical Neuroanatomy for medical students
Pediatric Neurological Physic~1 Therapy -Campbell
.Saunders manual of physical therapy
Orthopedic Neurology-Hoppenfeild
Janet Carr. Neurological Rehabilitation
.Low back pain-handbook herring
Darse-textbook of Neurology
Pediatric physical therapy -Shepered
John pattern: neurological differential diagnosis.
Fredericks: Pathophysiology of motor system.

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MPT IN CARDIOVASCULAR & PULMONARY

PAPER-V

ANATOMY. PHYSIOLOGY AND PATHOMECHANICS

1 Development of cardiovascular and pulmonary system.
2. Anatomy & PhYSlology ot cardlo pulmollary Syst~111.
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 and diseased state.
12. Autonomic nervous system and cardiac functions.
13. Cough reflex.
14. 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 diseases.
Pulmonary diseases 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 diseases.
Occupational lung disorders.
Cardiopulmonary compiicatlons 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 & Documenta!iQn
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 trea~ment 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 rrloving chest, Breathing pattern.

f. Evaluation of speech, breath, cough, and sputum and theirguidelines.
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 wall expulsion.
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.
a 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 Function.
Pulmonary function tests (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, maximal voluntary ventilation. Guidelines for interpretation of PFT. Diagnosis of Restrictive and Obstructive lung Diseases With the help of PFT.
a EXERCISE TESTING: 12 Minute walking test, Bergs PRE test.
a CHEST RADIOGRAPHY
Principles of chest x-ray interpretation.
Guidelines for interpretation of abnormal chest radiograph.
a BACTERIOLOGICAL AND CYTOLOGICAL TESTS
Clinical significance of test results
a MULTI SYSTEM ASSESSMENT AND LABORATORY INVESTIGATIONS ELEMENTS
Blood, pulmonary function, cardiac function, peripheral vascular function, kidney function, Endocrine function, pancreatic function, immunological function.
II.CARDIOV ASCULAR
Inspection: Chest wall deformities, Respiratory pattern, Cyanosis, Clubbing.
Palpation: Edema,
Auscultation
a. The stethoscope.
b. Nomenclature & interpretations of heart sounds.
c. The examination technique

d. Gallops and murmurs.
a 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 Cororlary 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 activities 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. Maximal exercise test
12. Additional invasive and noninvasive testing
13. Serum lipid profile
14. Evaluation of monitored job simulation
CJ Low Level Exercise Testing
Purpose, Contra -indications, Termination points
Maximal Exercise Testing
Purpose, Guidelines, Exercise test protocols, Conualndications and Precautions, Criteria for terminatiorl 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-arterial lines, Pulmonary artery balloon flotation catheter, Intravenous lines, Central venous pleasure, Intra aortic balloon counter pulsations, Intra cranial pressure, Electroencephalogram.
SPECIAL TESTS
Cardiac Scans PET scans, Infarct Avid Scans, Pulmonary scans, Perfusion scan, Ventilation Scan, ECHO Cardiography, Angiography. Interpretation of results.
a 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 of 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-VIII
PHYSIOTHERAPY INTERVENTIONS

Artificial respiration.
Exercise planning and prescription.
Cardio pulmonary 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, Nickity wilson syndrome, Bronchial stenosis.
Children with respiratory dysfunction.
capo, Asthma, Cystic fibrosis, Immunological deficits, Pertusis.

Peripheral vascular disorders.
.Arterial pathological condi!i.ons.
Venous pathological conditions,
Lymphatic pathological conditions.

Obstructive lung disorders
COPO, Chronic bronchitis, Emphysema, Bronchiectasis, asthma, Cystic fibrosis(early stage).

Restrictive lung disorders.
Cystic fibrosis.

Infectious lung disorders

Congenital heart diseases.

Valular 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 thoracis, Rib resection, Decortication
Window operation, Omento plasty.
Surgeries to thoracic wall, surgeries in Cardiac conditions, Vascular conditions and Pulmonary conditions.

Reference:

.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 and the heart,
.Saunders manual of physical therapy
.Jullieu-textbook of Cardiology
.Webber-Cardio Pulmonary physical therapy
.Jennifer & Barbara: physiotherapy for respiratory and cardiac problems
.Donna: cardiopulmonary physical therapy

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MPT IN SPORTS MEDICINE

PAPER-V

ANATOMY. PHYSIOLOGY & PA THOMECHANICS

Psychological factors of sports injuries.
Physiological 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 & regulations of sports, sport specific injuries.
Pathomechanics of sport injuries.
Physical demand in different sports.
Flexibility exercises -Neurophysiology.
Physiological effects of stretching & mobilizations prior to the participation in sports.
Types of exercises and their physiological 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...) I
Aquatic- Physical properties of water, Physiologic effects of water immersion and its therapeutic value.
1.Embryological development of musculoskeletal system.
2.0steology: Structure of bone, ossification of bones, Skull bones, Facial bones, Bones of Upper Extremity, Lower 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.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 SPORTS MEDICINE

PAPER-VI

CLINICAL CONDITIONS

Student 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 advances in the surgical, medical management of sports related injuries.
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 -contributing risk factors-intrinsic factors, extrinsic factors.

Shoulder Girdle 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 .-medial 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 boutoniere deformity, fractures of the metacarpals, Bennett's fracture, mallet finger, Dequervain's tenosynovitis of the thumb, Bowler's thumb, handler 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 reducion 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-Achilles tendonitis, Anterior tibialis tendonitis, Peroneal tendinitis, Poster tibialis tendonitis, Flexor hallucis longus tendinitis, Flexor dlgitorum longus tendinitis, Compartmental compression syndromes, Heel bruses, Os trigonum injury, Calcaneal apophysitis, Tarsometatarsal injuries, Tarsal tunnel syndrome, Cuboids syndrome, Metatarsal stress fracture, Interdigital neuroma, Stairclimbers transient parasthesia, Turf toe, sesmoitidis.
Injuries to the Ankle:
Syndesmotic ankle sprain, Inversion sprains, eversion 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 hip- iliotibial tract pain, trochanteric bursitis, stress fracture of femoral neck, slipped capital femoral epiphysis, vague hip pain.
} Common Running related injuries to the knee:
Medial patellar pains, pes anserine bursitis, patellar tendonits, retropatellar pain, lateral patellar pain, lateral knee pain, biceps femoral tendinitis.
} Common running related injuries to the lower leg:
Tibial stress relation, stress fracture, medial tibial stress syndrome, compartment syndrome -anterior posterior lateral, fibular stress reaction and stress fracture, retrocalcaneal bursitis medial arch pain, plantar fascitis,
~ Swimming Injuries:
"Swimmers Shoulder" anterior subluxation of the Glenohumeral joint, breaststroker's injury.

MPT IN SPORTS MEDICINE
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 Examination
Preparticipation History
Examination: Eye examination, Musculoskeletal Examination, Neurological Examination and Convulsive Disorders, Cardiovascular Examination, Pulmonary Examination, Urogenital Examination, Gastrointestinal Examination Dermatological .Examination, Examination for Heat Disorders, General Medical Problems, Dental Examination.
} Application of isokinetics in testing.
Student should be able to use & understand results of electro diagnostic tools & imaging techniques used in the sport evaluation.

>- Assessment & evaluation of the 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 Girdle Injuries:
Injuries to the sternoclavicular joint -sprains, dislocations, Scapulothoracic joint i

lesions, acromioclavicular joint sprains, anterior dislocation of glenohumeral joint, recurrent I anterior dislocation of the shoulder, posterior dislocation of shoulder, thoracic outlet syndrome, Painful arc, Rotator cuff injuries, Impingement syndromes, Glenoid Labrum

>- Elbow joint Injuries: it

Olecranon bursitis, Valgus extension overload. elbow, Ulnar nerve lesions, Ulnar & it. radial collateral ligament sprains, Contusions and strains, Dislocations, Osteochondritis ~ dissicans, Little Leaguers elbow, problems resulting from throwing -medial lesions, lateral !% Ipsions posterior lesions, t

>- Elbow injuries from Tennis: Epicondylitis. ~i

>- Wrist and hand Injuries:

Colle's fracture, scaphiod fracture, Gamekeeper's Thumb, DIP joint fracture & dislocation, Jersey finger, Boutonniere deformity, pseudo boutoniere deformity, fractures of the metacarpals. Bennett's fracture, mallet finger, Dequervain's tenosynovitis of the thumb,

Bowler's thumb, handler 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 reducion 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-Achilies tendonitis, Anterior tibialis tendonitis. Peroneal tendinitis, Poster tibialis tendonitis, Flexor hallucis longus tendinitis, Flexor digitorum longus tendinitis, Compartmental compression syndromes, Heel bruses. Os trigonum injury, Calcaneal apophysitis, Tarsometatarsal injuries, Tarsal tunnel syndrome, Cuboids syndrome, Metatarsal stress fracture, Interdigital neuroma, Stairclimbers transient parasthesia, Turf toe, sesmoitidis.

} Injuries to the Ankle:

Syndesmotic ankle sprain, Inversion sprains, eversion 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 hip- iliotibial tract pain, trochanteric bursitis, stress fracture of femoral neck, slipped capital femoral epiphysis, vague hip pain.

} Common Running related injuries to the knee :

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

} Common running related injuries to the lower leg .

Tibial stress relation, stress fracture, medial tibial stress syndrome, compartment syndrome -anterior posterior lateral, fibular stress reaction and stress fracture,

retrocalcaneal bursitis medial arch pain, plantar fascitis,
} Swimming Injuries:
"Swimmers Shoulder" anterior subluxation of the Glenohumeral joint, breaststroker's injury.

MPT IN SPORTS MEDICINE
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
Protective equipments, supportive devices, motion limiting devices.
} Treatment of atheletic injuries
Taping and wrapping techniques.
} Emergency care and Atheletic first aid
Cardiopulmonary emergencies, ABC of resuscitation, Haimlick maneuver shock Injuries-internal injuries, Head and neck injuries. fractures, 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, shortwave diathermy, Microwavediathermy, Ultrasound, Iontophoresis, Phonophoresis, TENS, Cryotherapy, cold spray, contrast bath, parffin 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 exercises-isometric exercise,isotonic exercise,special forms of exercise-manual resistane, proprioceptive neuromuscular facilitation,surgical tubing,circuit training, sport-specific skills

~ Application 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 Girdle 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 -medial lesions, lateral lesions posterior lesions,

~ Elbow injuries from Tennis:
Epicondylitis.
~ Wrist and hand Injuries:
Colle's fracture, scaphiod fracture, Gamekeeper's Thumb, DIP joint fracture & dislocation, Jersey finger, Boutonniere deformity, pseudo boutoniere deformity, fractures of the metacarpals, Bennett's fracture, mallet finger, Dequervain's tenosynovitis of the thumb, Bowler's thumb, handler 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 reducion 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-Achilies tendonitis, Anterior tibialis tendonitis, Peroneal tendinitis, Poster tibialis tendonitis, Flexor hallucis longus tendinitis, Flexor digitorum longus tendinitis, Compartmental compression syndromes, Heel bruses, Os trigonum injury, Calcaneal apophysitis, Tarsometatarsal

injuries, Tarsal tunnel syndrome, Cuboids syndrome, Metatarsal stress fracture, Interdigital neuroma, Stairclimbers transient parasthesia, Turf toe, sesmoitidis.
~ Injuries to the Ankle:
Syndesmotic ankle sprain, Inversion sprains, eversion 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 hip- iliotibial tract pain, trochanteric bursitis, stress fracture of femoral neck, slipped capital femoral epiphysis, vague hip pain.
~ Common Running related injuries to the knee :
Medial patellar pains, pes anserine bursitis, patellar tendon its, retropatellar pain, lateral patellar pain, lateral knee pain, biceps femoral tendinitis.

~ Common running related injuries to the lower leg:
Tibial stress relation, stress fracture, medial tibial stress syndrome, compartment syndrome -anterior posterior lateral, fibular stress reaction and stress fracture, retrocalcaneal bursitis medial arch pain, plantar fascitis,
.~ Swimming Injuries:
"Swimmers Shoulder" anterior subluxation of the Glenohumeral joint, breaststroker'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 protocas used in sports physiotherapy.
Reference:
.Saunder's manual of pnysical therapy, ;~,
.Zuluaga: sports physiotherapy applied science & practice, .
.Thomas: imaging of sports injuries,
.Sandra: assessment of athletic injuries,
.David: sports injury assessment & rehabilitation,
.Chad: evaluation of orthopaedic and athletic injuries,
.Christopher: sport injuries diagnosis & management,
.Joanne: aquatic therapy programming guidelines and orthopaedic rehabilitation,
.Skinner: exercise testing & exercise prescription,
.Vivian: advanced fitness assessment exercise prescription, ;
.Katch: exercise physiology, energy nutrition, and human performance, ,;c~
.Frank: exercise physiology for health care professionals, ,t"
.David: collision sport injuries and repair, ;,;'

.James: the biomechanics of sports techniques,
.Dinesh: decision making and out comes in sports rehabilitation,
.Hay: the biomechanics of sports techniques,
.Sports injuries -Christopher,
.Sports Medicine-Fox,
.Oxford textbook of sports physiotherapy.

Reference Joumals

1. American physical therapy association.
2. Archives of physical medicine and rehabilitation
3. Australian journal of physiotherapy
4. Journal of pain
I5. 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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Journal Review Presentation

Guidelines for evaluation of Journal Review Presentation

Sl.NO	Items for Observation
1.	Article chosen is relevant and appropriate
2.	Extent of Understanding of Scope & Objectives of the paper by the Candidate.
3.	Whether cross references have been consulted
4.	Whether they understood the Material, Methods, Observations and Statistical analysis?
5.	Ability to respond to Questions on the paper / Subject
6.	Audio – Visual aids used.
7.	Ability to analyse the paper and co-relate with the existing knowledge
8.	Clarity of Presentation
9.	Any other Observation.

- Corollary Grading in all Check lists:
  Poor – 0, Satisfactory – 1, Average – 2, Good – 3, Very Good- 4.

Evaluation of Journal review Presentation

(This table should be filled and signed by the concerned Teacher regularly**)**

Sl.No	Date	Journal Article & Publication Details	Average Grid	Name of the Moderator	Initials of Guide.

Sl.No	Date	Journal Article & Publication Details	Average Grid	Name of the Moderator	Initails of the Guide.

Sl.No	Date	Seminar Topic	Average Grid	Name of the Moderator	Initails of the Guide.

Clinical Work
Guidelines for evaluation of Clinical Work in the Department.

Sl.No	**Points to be Considered**
1.	Regularity of Attendance.
2.	Functionality
3.	
4.	

5.	
6.	
7.	

- **Corollary Grading in all Check lists:**

Poor -0, Satisfactory -1 , Average – 2, Good – 3, Very Good -4.

Evaluation of Clinical Work in the Dpartment

Sl.No	**Date**	**IP No/ OP No**	**Name of the patient**	**Details of the case and Work done in brief**	**Average Grade**	**Initials of the Guide / Faculty**

Seminar Presentations
Guidelines for evaluation of Seminar presentations

Sl.No	**Items for Observation**
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

- **Corollary Grading in all Check lists:**

Poor -0, Satisfactory -1 , Average – 2, Good – 3, Very Good -4.

Evaluation of Seminar Presentation:

Sl.No	Date	Seminar Topic	Average Grid	Name of the Moderator	Initails of the Guide.

Sl.No	Date	Seminar Topic	Average Grid	Name of the Moderator	Initails of the Guide.

Sl.No	**Date**	**IP No/ OP No**	**Name of the patient**	**Details of the case and Work done in brief**	**Average Grade**	**Initials of the Guide Faculty**