

POST GRADUATE DIPLOMA IN ON FIELD SPORTS INJURY MANAGEMENT

Ordinances

A candidate for the Postgraduate Diploma in On Field Sports Injury Management will pursue his / her studies as Correspondence mode in the Faculty of Allied Health Sciences at Tamil Nadu Physical Education and Sports University, Chennai for one year of study. At the end of the year, examination will be conducted.

Eligibility for Admission:

1. Candidate seeking admission must possess the following basic qualification: - B.P.T / M.P.T with at least 50% marks from any recognized University/ Institute or equivalent or higher degree.
2. The candidate seeking admission to the course shall be medically fit.
3. Every candidate shall pay the fees as prescribed by the authorities at the time of admission.
4. The students admitted to the course shall attend lectures, practical classes as prescribed by the Board of Control.
5. Every candidate shall be required to appear in the written test in various subjects and / or practicals as may be prescribed by the Board of Control.
6. The candidate shall be examined in such theory papers and practical examinations as may be prescribed in the syllabus.
7. The medium of instruction shall be English. The candidate may answer questions in the Examination in English only.
8. All the examination shall be conducted by the examiners appointed on the recommendation of the Board of Studies. The Practical examination will be conducted by Board of Examiners consisting of External Examiner and Internal Examiner.
9. A candidate shall be declared to have passed the examination if he / she obtained not less than 50% of the marks in theory / practical papers separately.

Objectives

The objectives of the examinations in the TNPESU are:

1. To determine the level of competence of Physiotherapists in the theory and practice of on field sports injury care.
2. To provide a standard whereby Physiotherapists may obtain recognition for their specialized knowledge and skills in on field sports injury management.

CURRICULUM

Subject code	Name of the paper	Internal	External	Practical	Total
	BASIC SCIENCES	25	75	-	100
	SPORTS TRAUMATOLOGY	25	75	-	100
	ON FIELD SPORTS INJURY MANAGEMENT	25	75	-	100
	PRACTICAL I	25	-	75	100
	COMPULSORY ON FIELD SPORTS INJURY MANAGEMENT INTERNSHIP (COFSIMI)	-	-	-	100

COFSIMI (Compulsory on Field Sports Injury Management Internship)

A Candidate pursuing PG Diploma in On Field Sports Injury Management should undergo Compulsory On Field Sports Injury Management Internship by serving as On Field Sports Injury Management Therapist for at least **TEN** Indoor or outdoor game events in either TNPESU or their native district School or college or competitive tournaments and should finally submit a draft and certificate from the authorities for the same.

PAPER I - BASIC SCIENCES

UNIT I SPORTS BIOMECHANICS

Biomechanics – Kinesiology - Sports Biomechanics- Definition - Meaning - Scope - Need and importance of Biomechanics & Kinesiology - Branches of Biomechanics - Statics and Dynamics – Force and its characteristics, Classification of force system, Composition and resolution of forces - Friction, impact - elasticity - Principles of Lever - Gravity, Methods of finding centre of gravity - Principles of Equilibrium.

UNIT II KINESIOLOGY

Kinematics-Linear kinematics-Angular kinematics –Kinetics –Linear Kinetics- Angular Kinetics- Motion - type of motion, Distance and speed, Displacement and velocity, Acceleration, Angular distance and Angular displacement, Angular Speed, Angular Velocity, Angular Acceleration, Inertia, mass, weight - Newton's Laws of motion - Units in linear and angular motion - Biomechanical characteristics of Walking- Biomechanical characteristics of Running –Biomechanics of Jumping-Mechanical characteristics of Throwing -biomechanics of pushing and pulling.

UNIT III EXERCISE PHYSIOLOGY

Bioenergetics of exercise : High energy phosphates, Anaerobic and aerobic ATP synthesis, Bioenergetics Control, exercise intensity & substrate utilization, protecting CHO stores, muscle adaptation to endurance training, processes that potentially limit the rate of fat oxidation, regulation of substrate utilization, training - induced increase in FFA oxidization - Basal metabolic and resting metabolic rates and factors affecting them, Classification of Physical Activities by energy expenditure,. Concept of MET, measurement of energy cost of exercise. Respiratory responses to exercise - Cardiovascular responses to exercise- Exercise and Acid Base Balance - Hormonal responses to exercise.

UNIT IV SPORTS NUTRITION

Nutrition : metabolism of Carbohydrate , fats and proteins , vitamin, mineral and water , optimum nutrition for exercise , nutrition for physical performance , pre game meal and Post game meal, carbohydrate loading , glycemic index, food for various athletic events , fluid and energy replacement in prolonged exercise.

UNIT V SPORTS PSYCHOLOGY

Meaning and definition of Sports Psychology – Attention, concentration and perception in sports - Motivational orientation in sports (Athlete's needs of motivation, Motivational inhibitors, Motivational techniques) - Pre-competitive anxiety (Source of PCA, Effect of PCA on performance) - Relaxation Training (Definition, Types of relaxation trainings- Progressive muscle relaxation, Breathing exercises, Transcendental meditation) - Aggression in sports - Management of aggression - Stress Management in Sports - Role of Psychology in Dealing with injuries - Goal setting in sports.

REFERENCES:

1. Paul Grimshaw et.al, Sports & Exercise Biomechanics, Taylor & Francis Group, 2007.
2. Susan J.Hall, Basic Biomechanics, McGraw Hill Education, 2004.
3. Peter McGinnis, Biomechanics of Sport and Exercise, Human Kinetics, 2005.
4. Kathryn Lutgens et al. Kinesiology (Scientific Basis of Human Motion), Brown and Benchmark, 1992.
5. Essentials of Exercise Physiology: McArdle, WD, Katch, FI, and Katch, VL. 2nd edn, Lippincott Williams and Wilkins (2000).
6. Physiology of Sport and Exercise: Wilmore, JH and Costil, DL. Human Kinetics (1994)
7. Exercise Physiology- Human Bioenergetics and its Application: Brooks, GA, Fahey, TD, White, TP. Mayfield Publishing Company (1996)
8. Willmore, JH & Costill, DL (1999) Physiology of Sport and Exercise. 2nd ed. Human Kinetics.
9. Guyton, A.C. Textbook of Medical Physiology (7th Ed.). Philadelphia: Saunders, 1986, pp. 382-386, 472-476.
10. Perspectives in Nutrition (6th ed.) by Wardlaw
11. Nutrition for sport and exercise (2nd ed.) by Berning and Steen Morgan and King:
12. Suinn: Psychology in Sports: Methods and applications, Surjeet Publications.
13. Grafiti: Psychology in contemporary sports, Prentice Hall.
14. Sanjiv P. Sahni: Handbook of Sports Psychology – A comprehensive manual of Mental Training.

PAPER II – SPORTS TRAUMATOLOGY

UNIT I INTRODUCTION TO SPORTS INJURIES

Sports injuries – Types of Injuries – Definition, Causes, Clinical Features, Management and Prevention of Soft Tissue Injuries: Skin Injuries – strain – Sprain – contusion – cramp- Tendon injuries – Bursitis. Bone injuries: Fracture – Subluxation –Dislocation. Importance of assessment & evaluation - Methods of evaluation - documentation - Clinical Examination - Reliability & Validity of the tests - Investigative Procedures - Causes & Mechanism of Sports Injuries - Principle of management of sports injuries.

UNIT II EVALUATION OF PHYSICAL FITNESS

Evaluation of Physical Fitness: Assessment of components of physical fitness including functional tests: muscle strength, flexibility, agility, balance, co-ordination, sensory deficits, cardio-pulmonary endurance. Sports-Specific evaluation and criteria for return to sport.

UNIT III REGIONAL CONDITIONS & ASSESSMENT

Sporting emergencies & Head and neck, face, abdominal injuries - Examination of upper Extremity - Common acute and overuse injuries of upper extremities with respect to causation, prevention and management) of: Shoulder girdle, shoulder, arm, elbow Forearm, wrist and hand - Assessment of vertebral column: Cervical, thoracic and lumbosacral including Tests of Neural Tension Common sports injuries of spine with respect to causation, prevention and management - Examination of lower limb - Common acute and overuse injuries of lower Extremity with respect to causation, prevention and management) of: Pelvis, hip, thigh, knee, leg, ankle and foot

UNIT IV SPORTS SPECIFIC INJURIES

Sports specific injuries, with special emphasis on the specific risk factor, nature of Sports, kind of medical intervention anticipated and prevention with respect to various sporting events

- a. Individual events: Field & Track
- b. Team events: Hockey, Cricket, and Football
- c. Contact and Non-contact sports
- d. Water sports

UNIT – V HEALTH ISSUES IN SPORTS

Health issues in climatic conditions : Heat related injuries – Heat stroke – Heat exhaustion – Heat Cramp – Heat Stress – Cold related injuries – Frostbite – Hypothermia – Altitude Sickness.

REFERENCES:

1. Norkin & White: Measurement of Joint Motion – A Guide to Goniometry - F.A.Davis.
2. Dvir: Isokinetics: Muscle Testing, Interpretation and Clinical Applications, W.B.Saunders.
3. Reed: Sports Injuries – Assessment and Rehabilitation, W.B. Saunders.
4. Lillegard, Butcher & Rucker: Handbook of Sports Medicine: A symptom – Oriented Approach, Butterworth & Heinemann
5. Baker: The Hughston Clinic Sports Medicine Book, Williams & Wilkins
6. Morris B. Mellion: Office Sports Medicine, Hanley & Belfus.
7. Richard B. Birrer: Sports Medicine for the primary care Physician, CRC Press.
8. Torg, Welsh & Shephard: Current Therapy in Sports Medicine III - Mosby.
9. Zulunga et al: Sports Physiotherapy, W.B. Saunders.
10. Brukner and Khan: Clinical Sports Medicine, McGraw Hill.
11. Gould: Orthopaedic Sports Physical Therapy, Mosby.
12. C. Norris: Sports Injuries – Diagnosis and Management for Physiotherapists, Heinmann.
13. D. Kulund: The Injured Athlete, Lippincott.
14. Nicholas Hershman: Vol. I The Upper Extremity in Sports Medicine.
Vol. II The Lower Extremity and Spine in Sports Medicine.
Vol. III The Lower Extremity and Spine in Sports Medicine.
Mosby.
15. Lee & Dress: Orthopaedic Sports Medicine - W.B Saunders.
16. Fu and Stone: Sports Injuries: Mechanism, Prevention and Treatment, Williams andWilkins.
17. Scuderi, McCann, Bruno: Sports Medicine – Principles of Primary Care, Mosby.
18. Lars Peterson and Per Renstron: Sports Injuries – Their prevention and treatment,Dunitz.

PAPER III – ON FIELD SPORTS INJURY MANAGEMENT

UNIT I PREPARTICIPATION SCREENING

Essentials – Objectives – Prospective Athlete: Prepubescent Athlete – Pubescent athlete – Post pubescent/Young adult athlete – Adult athlete – Elderly athlete. Contemplated exercise programme – Motivation – Implementation – Frequency – Timing – History – Physical examination – Laboratory Examination – Additional Screening procedures – Assessment – Injury prediction – Determination of clearance.

UNIT II SUPPLEMENTS, PROTECTIVE EQUIPMENTS, ERGOGENIC AIDS & DOPING

Supplements: Creatine – Prohormones - Beta-hydroxy-beta-methylbutyrate – Alpha agonists – Caffeine. Protective Equipments: Different types of Equipments and its importance. Ergogenic aids & Doping: Anabolic-androgenic steroids – Human growth hormone – Erythropoietin – Alcohol – Marijuana – Cocaine – Methamphetamine. WADA's list of prohibited substances and methods

UNIT III COVERING ATHLETIC COMPETITION

The Sports medicine team – Role of Physiotherapist, Team physician, Coach, Emergency medical services – Recommended Equipments – The Medical Bag & Sideline supplies – Recommended Medications – Preparation for sideline coverage: Preseason preparation checklist – Game day preparation checklist- timing - Special Sports coverage settings : International events – Mass preparation events.

UNIT IV ON FIELD EMERGENCY AND MANAGEMENT

Onsite management of the collapsed athlete triage - The primary abcd survey : airway and cervical spine – breathing – circulation – defibrillation – the glasgow coma scale – Secondary abcd survey – Potential causes of on field emergencies - system evaluation : Head and neck : Brain injury – Intracranial haemorrhage – Epidural Haematoma – Subdural haematoma – subarchanoid haematoma – Intracerebral haematoma. Cervical spine fractures / dislocations – Laryngeal fracture – Cardiac emergencies – Respiratory emergencies – Orthopaedic conditions: Posterior Sternoclavicular dislocation – Fat embolism – Hip dislocation – Knee dislocation – Environmental emergencies. Emergency protocols: Medical

event coverage – Emergency communication – Emergency equipment and supplies – Transportation – Written policies and procedures.

UNIT V PHYSIOTHERAPY TECHNIQUES

Principles of Injury prevention: Warm up – Cool down – Stretching – Types of stretching – Principles of stretching. PRICE technique – Immobilization and Early mobilisation – Splinting – Handling & Transfer - Cryotherapy: Methods of application (Ice packs, Ice towel, Ice Immersion, Ice cube massage, Excitatory cold, Vapocoolant spray, cryokinetics & Cold whirlpool) - Taping and Bracing - Soft tissue Massage – Trigger point release – Muscle energy techniques – Manual therapy

REFERENCES:

1. Brukner and KarimKhan: Clinical Sports Medicine, McGraw Hill.
2. McKeag, Douglas B. Moeller, James L:ACSM's Primary Care Sports Medicine, 2nd Edition, Lippincott Williams & Wilkins
3. Darren Johnson and scott Mair: Clinical Sports Medicine, 1st ed, Mosby
4. Reed: Sports Injuries – Assessment and Rehabilitation, W.B. Saunders.
5. Lillegard, Butcher & Rucker: Handbook of Sports Medicine: A symptom – Oriented Approach, Butterworth & Heinemann
6. Baker: The Hughston Clinic Sports Medicine Book, Williams & Wilkins
7. Morris B. Mellion: Office Sports Medicine, Hanley & Belfus.
8. Richard B. Birrer: Sports Medicine for the primary care Physician, CRC Press.
9. Torg, Welsh & Shephard: Current Therapy in Sports Medicine III - Mosby.
10. Zulunga et al: Sports Physiotherapy, W.B. Saunders.
11. Gould: Orthopaedic Sports Physical Therapy, Mosby.
12. C. Norris: Sports Injuries – Diagnosis and Management for Physiotherapists, Heinmann.

PRACTICALS I

UNIT I

PRICE TECHNIQUE, HANDLING & TRANSFER

UNITII

TAPING & BRACING for important injuries.

UNIT III

CRYOTHERAPY, SOFT TISSUE MASSAGE, STRETCHING

UNIT IV

TRIGGER POINT RELEASE, MUSCLE ENERGY TECHNIQUES

UNIT V

CARDIO PULMONARY RESUSTICATION

REFERENCES:

1. Brukner and KarimKhan: Clinical Sports Medicine, McGraw Hill.
2. McKeag, Douglas B. Moeller, James L:ACSM's Primary Care Sports Medicine, 2nd Edition, Lippincott Williams & Wilkins
3. Darren Johnson and scott Mair: Clinical Sports Medicine, 1st ed, Mosby
4. Reed: Sports Injuries – Assessment and Rehabilitation, W.B. Saunders.
5. Lillegard, Butcher & Rucker: Handbook of Sports Medicine: A symptom – Oriented Approach, Butterworth & Heinemann
6. Baker: The Hughston Clinic Sports Medicine Book, Williams & Wilkins
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8. Richard B. Birrer: Sports Medicine for the primary care Physician, CRC Press.
9. Torg, Welsh & Shephard: Current Therapy in Sports Medicine III - Mosby.
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