

PACIFIC MEDICAL UNIVERSITY, UDAIPUR

Ph.D. Entrance Syllabus –Physiotherapy

1. Advanced Anatomy & Physiology

- Functional anatomy of musculoskeletal system
- Neuroanatomy and neurophysiology
- Cardiopulmonary physiology
- Endocrine, renal, and gastrointestinal physiology
- Biomechanics and kinesiology

2. Advanced Exercise Physiology & Kinesiology

- Muscle physiology & adaptation to exercise
- Energy systems & fatigue
- Cardiovascular and respiratory responses to exercise
- Exercise prescription principles
- Rehabilitation biomechanics

3. Neurological Physiotherapy

- Neurodevelopmental concepts (NDT, PNF, Bobath)
- Motor control & motor learning
- Stroke rehabilitation
- Parkinson's disease, MS, SCI
- Pediatric neurorehabilitation (CP, developmental delays)
- Neuroplasticity & neurorehabilitation strategies

4. Musculoskeletal Physiotherapy

- Orthopedic assessment and diagnosis
- Joint mobilization and manipulation
- Soft tissue mobilization
- Postural correction and ergonomic training
- Sports injuries and rehabilitation
- Spinal disorders (back pain, spondylolisthesis, disc prolapse)

5. Cardiopulmonary Physiotherapy

- Cardiac rehabilitation
- Pulmonary rehabilitation
- Respiratory assessment and monitoring
- Airway clearance techniques
- Exercise training in COPD, asthma, post MI

6. Pediatric Physiotherapy

- Developmental milestones and delay
- Pediatric assessment tools
- Cerebral palsy, muscular dystrophy
- Pediatric cardiopulmonary conditions
- Early intervention and family-centered care

7. Geriatric Physiotherapy

- Aging physiology and functional decline
- Falls prevention
- Osteoporosis and arthritis management
- Balance training and mobility aids
- Cognitive decline and dementia care

8. Sports Physiotherapy & Rehabilitation

- Sports injury prevention and management
- Rehabilitation protocols for athletes
- Conditioning and strength training
- Taping and bracing techniques
- Performance enhancement

9. Community & Public Health Physiotherapy

- Epidemiology and public health concepts
- Community-based rehabilitation (CBR)
- Health promotion and prevention
- National health programs
- Disability and rehabilitation policies

10. Electrotherapy & Physical Agents

- Principles and indications of electrotherapy
- Therapeutic ultrasound, TENS, NMES
- Laser therapy, infrared, cryotherapy
- Diathermy, traction therapy
- Safety and contraindications

11. Research Methodology & Biostatistics

- Research designs (experimental, observational)
- Sampling techniques and data collection
- Hypothesis testing and statistical analysis
- Descriptive & inferential statistics
- Research ethics (ICMR guidelines)
- Thesis writing and publication process

12. Evidence-Based Practice & Clinical Reasoning

- Critical appraisal of research papers
- Systematic reviews and meta-analysis basics
- Clinical decision making
- Outcome measures and measurement tools
- Quality of life assessment tools

13. Rehabilitation Management & Administration

- Rehabilitation team and multidisciplinary care
- Patient safety and quality assurance
- Hospital administration and physiotherapy department management
- Documentation and audit
- Legal and ethical aspects in physiotherapy