

**POST GRADUATE DIPLOMA IN  
PAEDIATRIC PHYSIOTHERAPY**

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## **AIMS & OBJECTIVES OF THE COURSE**

### **PGD in Paediatric Physiotherapy**

#### **Aims:**

The course aims to prepare the candidate towards professional excellence in specialized skills in the respective field of Physiotherapy. The course is conducted with the prime intention to acquaint the candidate with research methods, concept of quality care, to promote the standards of Paediatric Physiotherapy education and to induce appropriate professional relationships in multidisciplinary hospitals & rehabilitation practice. It also aims to inculcate competent standards in clinical practice and research.

#### **Objectives:**

The candidate undergoing this course shall:

1. acquire a sound knowledge of the specialized skills of the physiotherapeutic interventions with special emphasis on the respective areas of specialization.
2. have an updated evidence-based practice, which includes evaluation, clinical reasoning, diagnosis and treatment methods.
3. practice within the professional code of ethics and conduct, and the standards of practice within legal boundaries.
4. gain experience in clinical teaching methods and undergraduate tutorials.
5. conduct research activities and utilize findings for professional development.

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## REGULATIONS

### ELIGIBILITY FOR ADMISSION

Every candidate for admission to the course for the diploma of Pediatric Physiotherapy [ must have been qualified with the degree of DPT or Bachelor of Physiotherapy [BS.P.T.].

### DURATION OF THE COURSE

One year

### MODE OF INSTRUCTION

Online + Hands on Practice

### Level

Postgraduate

## COURSE OF STUDY

<b>FIRST SEMESTER</b>			
<b>Sl. No</b>	<b>Course Code</b>	<b>Subjects</b>	<b>Credit Hours</b>
1.	PPT-10	Applied Anatomy & Kinesiology	3
2.	PPT-11	Exercise Physiology	2
3.	PPT-12	Physiotherapeutic	2
4.	PPT-13	Specialty part - I: Paediatric Physical Assessment	4
5.	PPT-14	Specialty part - II: Paediatric Physiotherapy ssInterventions	4
Total Credit Hours			15
<b>SECOND SEMESTER</b>			
1	PPT-15	Supervised Clinical Practice	8
<b>Total</b>			<b>23 hours</b>

## SYLLABUS

A detailed syllabus of the subjects to be covered during the PGD. program is given below. However, this is not exhaustive, and a candidate is advised to use this as a guideline to further update his/her knowledge and skills in the field of Physiotherapy.

The instructional courses are intended as a revision and updating of the topics essential for physical therapy practice. A brief outline of the topics to be covered in these subjects is as follows.

### 1-APPLIED ANATOMY & KINESIOLOGY

1. Arthrokinematics and Osteokinematics of musculoskeletal system.
2. Biomechanics of articular cartilages, tendons and ligaments.
3. Biomechanics & Kinesiology of shoulder girdle, shoulder joint, elbow joint, forearm, wrist and hand.
4. Biomechanics & Kinesiology of Temporomandibular joint.
5. Biomechanics & Kinesiology of neck and trunk.
6. Biomechanics & Kinesiology of pelvic girdle, hip, knee complex, ankle & foot.
7. Functional Anatomy of Upper Extremity, Lower Extremity & Trunk.
8. Biomechanics & Kinesiology of posture and gait.
9. Ergonomics & application in work environment.

#### **Suggested references:**

- Lippert LS; Clinical Kinesiology and Anatomy; Jaypee brothers, New Delhi.
- Levangie PK, Norkin CC; Joint Structure & Function- A Comprehensive Analysis; Jaypee brothers, New Delhi.
- Kapandji IA; The Physiology of Joints; Churchill Livingstone, Edinburgh.
- Smith LK *et al*; Brunnstrom's Clinical Kinesiology; Jaypee brothers, New Delhi.

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### 2-EXERCISE PHYSIOLOGY

*Nutrition-The Base for Human Performance: Carbohydrates, Lipids, Proteins, Vitamins, Minerals and Water; Optimal Nutrition for exercise.*

1. *Energy for Physical Activity:* Energy value of food; Energy transfer in the body and in exercise; Measurement of Human Energy Expenditure at rest, physical activities like Walking, Jogging, Running and Swimming.
2. *Systems of Energy Delivery and Utilization:* Pulmonary, Cardiovascular, Muscular, Neural and Endocrine systems.
3. *Enhancement of Energy Capacity:* Training for anaerobic and aerobic power; Muscular strength training; Special aids to exercise training and performance.
4. *Exercise Performance and Environmental Stress:* Exercise at Altitudes; Exercise and Thermal stress.
5. *Body composition, Energy balance and Weight Control:* Body composition assessment; Physique, performance, and physical activity; Obesity and weight control.
6. *Exercise, Aging and Disease Prevention:* Physical activity, health, and aging; Clinical exercise physiology for cancer, cardiovascular and pulmonary rehabilitation.

#### **Suggested reference:**

- McArdle DW, Katch FI & Katch VL; Exercise Physiology, Energy, Nutrition & Human Performance; Lippincott W&W, Philadelphia, 2007.

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### **3-PHYSIOTHERAPEUTICS**

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#### **EXERCISE THERAPY:**

Applied Science of Exercise and Techniques:

Range of motion, Stretching, Resisted exercise, Principles of aerobic exercise, Exercise for balance & posture, Aquatic exercises, Training with functional devices.

- Joint Mobilization Techniques
- Soft Tissue Mobilization Techniques
- Current concepts in therapeutic modalities.

#### **ELECTROTHERAPY:**

Biophysics of therapeutic electrical currents & therapeutic thermal modalities.

- Physiological effects & response to electrical & thermal stimuli.
- Electrophysiological tests.
- Therapeutic effects of electrical and thermal modalities
- Current concepts in therapeutic modalities

#### **Suggested references**

- Physical agents in rehabilitation by Cameroon
- Therapeutic Exercise: Foundations and Techniques by Carolyn Kisner and Lynn Allen Colby (W.B. Saunders Company, 2007)
- Therapeutic Exercise, Moving Towards Function by Carrie M. Hall and Lori Thein Brody (Lippincott Williams & Wilkins, 2004)
- Electrotherapy Explained Principles and Practice; John Low and Ann Reed; Butterworth Heinemann.

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#### **4-SPECIALITY (Part- I): PHYSICAL ASSESSMENT**

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<b>S.No</b>	<b>CONTENT</b>
1	<p>OVERVIEW OF ANATOMY ANDPHYSIOLOGY</p> <ul style="list-style-type: none"><li>• Neuroanatomy</li><li>• Neurophysiology</li><li>• Cardiopulmonary anatomy &amp; physiology</li></ul>
2	<p>FOETAL DEVELOPMENT</p> <p>Basic Embryology – Development of organsystems</p> <p>Normal Growth and Development</p> <ul style="list-style-type: none"><li>• Nervous system</li><li>• Musculoskeletal System</li><li>• Cardiopulmonary system</li></ul>
3	<p>ASSESSMENT MODELS - Conceptual FrameworkFor Clinical Practice</p> <p>Components of a conceptual framework:Models of practice</p> <ol style="list-style-type: none"><li>1. Models of disablement- Nagi model, National Center for Medical RehabilitationResearch disablement model, 1993 (NCMRR) model, World Health Organization model,</li><li>2. International Classification of Function and disability (ICF) format. International Classification of Function and disability (ICF) Coding • History and development of the ICF<ul style="list-style-type: none"><li>• The ICF and the WHO family of international classifications • Components of the ICF • ICF coding • Benefits of Using ICF</li></ul></li><li>3. Hypothesis – oriented clinical practice</li></ol>
4	<p>EXAMINATION AND EVALUATION</p> <ol style="list-style-type: none"><li>i. Motor Control</li><li>ii. Neonate</li><li>iii. High risk infant</li><li>iv. Low birth weight &amp; very low birth weight child</li><li>v. Preterm infant.</li></ol>

5	<p><b>OUTCOMES AND SCALES</b></p> <p>Theoretical foundation of Newborn / developmental surveillance and screening - Basis of test development target population psychometric properties of the commonly used developmental scales:</p> <p>Tests and Scales of milestones, motor, behavioral, activities of daily living (ADL), mobility, functional capabilities, neuro- behavioral, Intelligence, and other screening tools for Infant and child, Neuropsychological and Cognitive</p>
6	<b>ANTHROPOMETRIC ASSESSMENT</b>
7	<b>ASSESSMENT AND EVALUATION OF BALANCE AND FITNESS</b>
8	<p><b>PEDIATRIC PHYSICAL EXAMINATION</b></p> <p>Principles of Laboratory investigations Computerized Tomography Scan, Magnetic Resonance Imaging, Electromyography, Nerve Conduction Study, Evoked Potentials, Muscle Biopsy, Thoracic Imaging, Pulmonary Function Tests, and Exercise Testing.</p> <p>Cardiovascular Exercise Testing- Endurance, strength, flexibility, and body composition) through various methods in children</p> <p>Sports performance evaluation</p> <p>Rationale for exercise prescription in children</p>
9	Pediatric orthopedic, neurological and cardiorespiratory assessment
10	Pediatric scale specific assessment of various neurological, orthopedic, cardiorespiratory conditions.
11	<p><b>ASSESSMENT OF</b></p> <p>Dyslexia and autistic child</p> <p>Cultural, family and environment of the child abuse and child neglect</p> <p>Pediatric burns</p> <p>Sports injuries in children Pediatric gait</p>
12	Disability evaluation of the child
13	Recent advances in the assessment and scales in pediatric

## **SUGGESTED REFERENCES**

1. Physical Rehabilitation, Susan B.O Sullivan, 4th & 5th editions, 2007, Jaypee Brothers.,
2. Pediatric Physical Therapy, Jan Stephen Tecklin, 3rd (1999) and 4th (2008) editions, Lippincott Williams & Wilkins.
3. Physiotherapy in Pediatrics, Roberta B. Shepherd, 3rd edition, 1995, Butterworth Heinemann
4. Guyton and Hall, Textbook of Medical Physiology, Saunders.
5. Neurological Rehabilitation, Darcy A. Umphred, 4th & 5th edition, 2007, 2001, Mosby.
6. Physical Therapy for Children, Suzann K.Campbell, 3rd edition, 2006, Saunders Elsevier.

## **JOURNALS**

1. Indian Journal of Pediatrics
2. Pediatric Physical Therapy
3. Physical Therapy
4. Developmental Child Medicine and Neurology

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## **5-SPECIALITY (Part- II): PHYSIOTHERAPY INTERVENTIONS**

<b>S.NO</b>	<b>CONTENT</b>
1	General Principle of Treatment
2	Theoretical Basis of Treatment Concept Motor Learning –Theories & Stages of Learning
3	Hypothesis Oriented Clinical Practice
4	Evidenced Based Pediatric Physiotherapy
5	The child's development of functional movement <ol style="list-style-type: none"><li>Motor development theories</li><li>Developmental processes and principles</li><li>Stages of motor development</li></ol>
6	Reflexes and Reactions <ol style="list-style-type: none"><li>Survival and vestigial reflexes</li><li>Attitudinal postural reflexes</li><li>Righting reactions</li><li>Balance reactions</li></ol>
7	Ethical and Legal Framework of pediatric Physicaltherapy practice
8	Models of team interaction and service delivery inPediatric Physical Therapy practice
9	Theoretical framework and clinical practice ofPediatric Physiotherapy approaches: <ol style="list-style-type: none"><li>Roods approach</li><li>Bobath and Neuro Developmental Therapy (NDT)</li><li>Proprioceptive Neuromuscular Facilitation (PNF)</li><li>Vojta concept</li><li>Sensory Integration Therapy (SI)</li><li>Myofascial Release (MFR)</li><li>Pediatric manual therapy</li><li>Conductive education</li><li>Adjunctive therapy</li><li>Systems/based task/oriented approach</li><li>Functional Electrical Stimulation</li><li>Body Weight Support Treadmill Training</li><li>Constraint Induced Movement Therapy</li><li>Mirror therapy, and Virtual reality</li><li>Biofeedback, Robotics</li><li>Aquatic therapy</li><li>Lung expansion therapy and ventilator</li><li>Bronchial hygiene therapy/postural drainage</li><li>Humidification, Oxygen therapy, Nebulization</li></ol>

10	Physical Modalities in Pediatric Rehabilitation
11	Physiotherapy for high risk neonates in intensive care - Early intervention strategies
12	<p>Physiotherapy for Pediatric Neuro-muscular and Neuro surgical conditions</p> <ol style="list-style-type: none"> <li>i. Acute bacterial meningitis</li> <li>ii. Tuberculous meningitis</li> <li>iii. Encephalitis and encephalopathies</li> <li>iv. Guillain-Barré syndrome (GBS)</li> <li>v. Intracranial space occupying lesions</li> <li>vi. Hydrocephalus</li> <li>vii. Neural tube defects</li> <li>viii. Acute hemiplegia of childhood</li> <li>ix. Paraplegia and quadriplegia</li> <li>x. Ataxia</li> <li>xi. Cerebral palsy</li> <li>xii. Developmental coordination Disorder</li> <li>xiii. Brachial Plexus lesion</li> <li>xiv. Poliomyelitis</li> <li>xv. Traumatic brain injury</li> </ol>
13	<p>Physiotherapy for Pediatric Musculoskeletal conditions</p> <ol style="list-style-type: none"> <li>i. Flat foot</li> <li>ii. Clubfoot</li> <li>iii. Perthes Disease</li> <li>iv. Juvenile Rheumatoid Arthritis</li> <li>v. Infantile idiopathic scoliosis</li> <li>vi. Torticollis</li> <li>vii. Fractures in Pediatrics</li> </ol>
14	<p>Physiotherapy for Pediatric Cardio Respiratory medical and surgical Conditions</p> <ol style="list-style-type: none"> <li>i. Acute lower respiratory tract infections</li> <li>ii. Tuberculosis</li> <li>iii. Bronchial asthma</li> <li>iv. Lung abscess</li> <li>v. Bronchiectasis</li> <li>vi. Acute respiratory distress syndrome (ARDS)</li> <li>vii. Acyanotic congenital heart defects</li> <li>viii. Cyanotic heart disease</li> <li>ix. Rheumatic fever and rheumatic heart disease</li> </ol>

15	Physiotherapy for <ol style="list-style-type: none"> <li>i. Pediatric language, communication, behavioural problems</li> <li>ii. Pediatric oncology</li> <li>iii. Pediatric surgeries</li> <li>iv. Poly trauma (Road Traffic Accident)</li> <li>v. Burns</li> <li>vi. Childhood obesity</li> <li>vii. Pediatric Pain</li> <li>viii. Developmental Disorders (Arthrogryposis Osteogenesis Imperfecta Developmental Dysplasia of the Hip)</li> <li>ix. Muscular Dystrophy</li> <li>x. Autism spectrum disorders</li> <li>xi. Child abuse and neglect</li> </ol>
16	Physiotherapy in assistive and adaptive technology in children
17	Exercise training for children
18	School based interventions
19	Physiotherapy in promoting activity and participation in children
20	Family and Community based intervention in pediatrics
21	Advanced Approaches in Pediatric Physical Therapy
22	Physiotherapy after pediatric sports injuries
23	Documentation
24	Recent advances Pediatric physiotherapy Intervention

### **SUGGESTED REFERENCES:**

1. Pediatric Physical Therapy, Jan Stephen Tecklin, 4th edition, Lippincott Williams & Wilkins.
2. Physiotherapy in Pediatrics, Roberta B. Shepherd, 3rd edn, 1995, Butterworth Heinemann.
3. Physiotherapy for Children, Teresa Pountney, 2007, Butterworth Heinemann Elsevier.
4. Cardiovascular & Pulmonary Physical Therapy evidence & practice, Elizabeth (Dean Version -2.0.0 26 & Donna frownfelter, 4th editions, MOSBY Elsevier.
5. Treatment of Cerebral Palsy & Motor Delay, Sophie Levett, 4th edition, 2004. Blackwell Publishing.
6. Pediatric Rehabilitation, Michael A. Alexander MD, Dennis J. Matthews MD, 5th ed.

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## SCOPE

The scope of a Postgraduate Diploma (PGD) in Pediatric Physical Therapy in Pakistan is promising, as there is a growing demand for specialized healthcare professionals in the field of pediatric physical therapy. Here are some key points regarding the scope of PGD in pediatric physical therapy in Pakistan:

1. **Increasing Awareness and Need:** There is an increasing awareness among parents, caregivers, and healthcare professionals about the importance of early intervention and specialized care for children with physical disabilities or developmental delays. This has created a significant demand for skilled pediatric physical therapists.
2. **Government Initiatives:** The government of Pakistan has been taking steps to improve healthcare services, including pediatric care. This has led to the establishment of more healthcare facilities, rehabilitation centers, and special education institutes, creating job opportunities for pediatric physical therapists.
3. **Private Healthcare Sector:** The private healthcare sector in Pakistan is also expanding rapidly, with private hospitals, clinics, and rehabilitation centers focusing on providing specialized services for children with physical disabilities. This presents employment opportunities for individuals with expertise in pediatric physical therapy.
4. **Education and Research:** With the increasing demand for specialized pediatric physical therapists, educational institutions in Pakistan are offering PGD programs in pediatric physical therapy to meet this demand. These programs provide advanced knowledge and skills in the assessment, diagnosis, and treatment of pediatric conditions, preparing graduates for rewarding careers in the field.
5. **Collaborative Approach:** Pediatric physical therapists often work in multidisciplinary teams, collaborating with other healthcare professionals such as pediatricians, occupational therapists, speech therapists, and psychologists. This collaborative approach enhances the scope of practice and opens avenues for professional growth and development.
6. **Professional Development:** Continuing education and professional development opportunities are available for pediatric physical therapists in Pakistan. These include workshops, conferences, and training programs that allow therapists to update their knowledge and learn new techniques and interventions in the field.
7. **Entrepreneurial Opportunities:** Graduates with a PGD in pediatric physical therapy also have the option to start their own private practice, providing specialized services to children in need. This allows them to have greater control over their practice and potentially expand their services to cater to a larger population.

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