

SYLLABUS FOR Ph.D. IN PEDODONTICS & PREVENTIVE DENTISTRY

COURSE CONTENTS

THEME 1

APPLIED BASIC SCIENCES

Applied Anatomy of Head and Neck:

- Anatomy of the scalp, temple and face
- Anatomy of the triangles of neck and deep structures of the neck
- Cranial and facial bones and its surrounding soft tissues with its applied aspects
- Muscles of head and neck
- Arterial supply, venous drainage and lymphatics of head and neck
- Congenital abnormalities of the head and neck
- Anatomy of the cranial nerves
- Anatomy of the tongue and its applied aspects
- Anatomy and its applied aspects of salivary glands, pharynx, thyroid and parathyroid gland, larynx, trachea, esophagus
- Autonomous nervous system of head and neck
- Functional anatomy of mastication, deglutition, speech, respiration and circulation
- TMJ: anatomy and function

Applied Physiology:

Introduction, Mastication, deglutition, digestion and assimilation, Homeostasis, fluid and electrolyte balance. Blood composition, volume, function, blood groups and hemorrhage, Blood transfusion, circulation, Heart, Pulse, Blood pressure, Normal ECG, capillary and lymphatic circulation, shock, respiration, control, anoxia, hypoxia, asphyxia, artificial respiration. Endocrine glands in particular reference to pituitary, parathyroid and thyroid glands and sex hormones. Role of calcium and Vit D in growth and development of teeth, bone and jaws. Role of Vit. A, C and B complex in oral mucosal and periodontal health. Physiology and function of the masticatory system. Speech mechanism, swallowing and deglutition mechanism, salivary glands and Saliva

Applied Pathology:

Inflammation and chemical mediators, Thrombosis, Embolism, Necrosis, Repair, Degeneration, Shock, Hemorrhage, Blood dyscrasias, Pathogenesis of Dental Caries, Periodontal diseases, tumors, oral mucosal lesions etc. in children

Applied Microbiology:

Microbiology & Immunology as related to Oral Diseases in Children: Basic concepts, immune system in human body, Auto Immune diseases and Immunology of Dental caries.

Applied Nutrition & Dietics:

- General principles, balanced diet, effect of dietary deficiencies and starvation, protein energy, malnutrition, Kwashiorkor, Marasmus.

- Fluid and Electrolytic balance in maintaining haemostasis
- Diet, digestion, absorption, transportation and utilization

Genetics:

- Introduction to genetics
- Cell structure, DNA, RNA, protein synthesis, cell division
- Modes of inheritance
- Chromosomal anomalies of oral tissues & single gene disorders

Growth & Development:

Prenatal and Postnatal development of cranium, face, jaws, teeth and supporting structures. Chronology of dental development and development of occlusion. Dimensional changes in dental arches. Cephalometric evaluation of growth.

THEME II

CLINICAL PAEDODONTICS - I

1. Child Psychology: Development & Classification of behaviour, personality, intelligence in children, theories of child psychology, stages of psychological child development, fear anxiety, apprehension & its management.
2. Behavior Management: Non- pharmacological & Pharmacological methods
3. Child Abuse & Dental Neglect
4. Conscious Sedation, Deep Sedation & General Anesthesia in Pediatric Dentistry: (Including Other Drugs, Synergic & Antagonistic Actions of Various Drugs Used in Children)
5. Preventive Pedodontics: Concepts, chair side preventive measures for dental diseases, high-risk caries including rampant & extensive caries - Recognition, Features & Preventive Management, Pit and Fissures Sealants, Oral Hygiene measures, Correlation of brushing with dental caries and periodontal diseases. Diet & Nutrition as related to dental caries. Diet Counseling
6. Dental Plaque: Definition, Initiation, Pathogenesis, Biochemistry, and Morphology & Metabolism.
7. Gingival & Periodontal diseases in Children
 - Normal Gingiva & Periodontium in children.
 - Gingival & Periodontal diseases - Etiology, Pathogenesis, Prevention & Management
8. Pediatric Operative Dentistry
 - Principles of Operative Dentistry along with modifications of materials, past, current & latest including tooth colored materials.
 - Modifications required for cavity preparation in primary and young permanent teeth.
 - Various Isolation Techniques
 - Restorations of decayed primary, young permanent and permanent teeth in children using various restorative materials like Glass Ionomer, Composites, Silver Amalgam & latest material (gallium)

- Stainless steel, Polycarbonate & Resin Crowns / Veneers & fibre post systems.
9. Pediatric Endodontics
 - Primary Dentition: - Diagnosis of pulpal diseases and their management Pulp Capping, Pulpotomy, Pulpectomy (Materials & Methods), Controversies & recent concepts.
 - Young permanent teeth and permanent teeth, Pulp capping, Pulpotomy, Apexogenesis, Apexification, Concepts, Techniques and Materials used for different procedures.
 - Recent advances in Pediatric diagnosis and Endodontics.
 10. Prosthetic considerations in Pediatric Dentistry
 11. Traumatic Injuries in Children
 - Classifications & Importance.
 - Sequelae & reaction of teeth to trauma.
 - Management of Traumatized teeth with latest concepts.
 - Management of jaw fracture in children

THEME III CLINICAL PAEDODONTICS - II

1. Interceptive Orthodontics
 - Concepts of occlusion and esthetics: Structure and function of all anatomic components of occlusion, mechanics of articulations, recording of masticatory function, diagnosis of Occlusal dysfunction, relationship of TMJ anatomy and pathology and related neuromuscular physiology.
 - A comprehensive review of the local and systemic factors in the causation of malocclusion.
 - Recognition and management of normal and abnormal developmental occlusions in primary, mixed and permanent dentitions in children (Occlusal Guidance).
 - Biology of tooth movement: A comprehensive review of the principles of teeth movement. Review of contemporary literature. Histopathology of bone and Periodontal ligament, Molecular and ultra cellular consideration in tooth movement.
 - Myofunctional appliances: Basic principles, contemporary appliances: Design & Fabrication.
 - Removable appliances: Basic principles, contemporary appliances: Design & Fabrication
 - Case selection & diagnosis in interceptive Orthodontics (Cephalometrics, Image processing, Tracing, Radiation hygiene, Video imaging & advance Cephalometric techniques).
 - Space Management: Etiology, Diagnosis of space problems, analysis, Biomechanics, Planned extraction in interception orthodontics.
2. Oral Habits in Children
 - Definition, Etiology & Classification
 - Clinical features of digit sucking, tongue thrusting, mouth breathing & various

- other secondary habits.
- Management of oral habits in children
3. Dental care of Children with special needs
 - Definition Etiology, Classification, Behavioral, Clinical features & Management of children with:
 - Physically handicapping conditions
 - Mentally compromising conditions
 - Medically compromising conditions
 - Genetic disorders
 4. Oral manifestations of Systemic Conditions in Children & their Management
 5. Management of Minor Oral Surgical Procedures in Children
 6. Dental Radiology as related to Pediatric Dentistry
 7. Cariology
 - Historical background
 - Definition, Etiology & Pathogenesis
 - Caries pattern in primary, young permanent and permanent teeth in children.
 - Rampant caries, early childhood caries and extensive caries. Definition, etiology, Pathogenesis, Clinical features, Complications & Management.
 - Role of diet and nutrition in Dental Caries
 - Dietary modifications & Diet counseling
 - Subjective & objective methods of Caries detection with emphasis on Caries activity tests, Caries prediction, Caries susceptibility & their clinical Applications
 8. Pediatric Oral Medicine & Clinical Pathology: Recognition & Management of developmental dental anomalies, teething disorders, stomatological conditions, mucosal lesions, viral infections etc
 9. Congenital Abnormalities in Children: Definition, Classification, Clinical features & Management
 10. Dental Emergencies in Children and their Management
 11. Dental Materials used in Pediatric Dentistry

THEME IV

PREVENTIVE AND COMMUNITY DENTISTRY AS APPLIED TO PEDIATRIC DENTISTRY – I

1. Preventive Dentistry:
 - Definition
 - Principles & Scope
 - Types of prevention
 - Different preventive-measures used in Pediatric *Dentistry* including fissure sealants and caries vaccine.
2. Health Education & School Dental Health Programmes
3. Dental health concepts, Effects of civilization and environment, Dental Health delivery system, Public Health measures related to children along with principles of Pediatric Preventive Dentistry

4. Fluorides
 - Historical background
 - Systemic & Topical fluorides
 - Mechanism of action
 - Toxicity & Management.
 - Defluoridation techniques
5. Medicological aspects in Pediatric Dentistry with emphasis on informed concept
6. Counseling in Pediatric Dentistry

THEME V

PREVENTIVE AND COMMUNITY DENTISTRY AS APPLIED TO PEDIATRIC DENTISTRY – II

1. Case History Recording, Outline of principles of examination, diagnosis & treatment planning
2. Epidemiology: Concepts, Methods of recording & evaluation of various oral diseases. Various national & global trends of epidemiology of oral diseases
3. Comprehensive Infant Oral Health Care
4. Principles of Bio-Statistics & Research Methodology & Understanding of Computers and Photography
5. Comprehensive cleft care management with emphasis on counseling, feeding, nasoalveolar bone remodeling, speech rehabilitation.
6. Setting up of Pedodontics & Preventive Dentistry Clinic
7. Emerging concept in Pediatric Dentistry of scope of laser/minimum invasive procedures Pediatric Dentistry.

RECOMMENDED BOOKS

1. Dentistry for the Child & Adolescent, 9th edition 2011 - McDonald
2. Textbook of Pediatric Dentistry, 3rd edition 2006, reprint 2008 - Prof. S.G. Damle
3. Textbook of Pedodontics, 2nd edition 2008, reprint 2009 - Shobha Tandon
4. Clinical Pedodontics, 4th edition, 2003 Finn
5. Pediatric Dentistry: Infancy through Adolescence, 4th edition, 2005 Pinkham
6. Child management in Dentistry, 1st edition, 1975 - Wright G.Z.
7. Fundamentals of Pediatric Dentistry, 3rd edition, 1995 Mathewson
8. Pediatric Dentistry, 2nd edition, 2001 - Wellbury
9. Pediatric Operative Dentistry, 3rd edition, 1986 Kennedy
10. Principles & Practice of Pedodontics, 3rd edition, 2012 Aarathi Rao