

MANAV RACHNA INTERNATIONAL INSTITUTE OF RESEARCH & STUDIES
(Deemed to be University under section 3 of the UGC Act 1956)

Ph.D ADMISSION TEST (MR-PAT)

Ph.D. in Orthodontics & Dentofacial Orthopaedics

Module 1: Growth and Development & Occlusion

- 1.1 Growth and development of cranial and facial structures
- 1.2 Development of dentition & occlusion
- 1.3 Functional Development
- 1.4 Occlusion- Basic concepts
- 1.5 Classification of malocclusion
- 1.6 Etiology of malocclusion
- 1.7 Habits
- 1.8 Epidemiology of malocclusion

Module 2: Diagnosis

- 2.1 Orthodontic Diagnosis
- 2.2 3D imaging Digital Orthodontics, Virtual Treatment Planning
- 2.3 Cephalometrics
- 2.4 Skeletal Maturity Indicators
- 2.5 Model Analysis

Module 3: Biomechanics

- 3.1 Biology of tooth movement
- 3.2 Mechanics of tooth movement
- 3.3 Anchorage
- 3.4 Age factor in Orthodontics

Module 4: Preventive & Interceptive Orthodontics & Space Gaining

- 4.1 Preventive Orthodontics
- 4.2 Interceptive Orthodontics
- 4.3 Methods of gaining space
- 4.4 Arch Expansion
- 4.5 Extractions

Module 5: Orthodontic Appliances

- 5.1 General principles
- 5.2 Removable appliances
- 5.3 Fixed appliances
- 5.4 Myofunctional appliances
- 5.5 Orthopaedic appliances

Module 6: Corrective Orthodontics

- 6.1 Treatment planning
- 6.2 Management of common malocclusions
- 6.3 Management of Class II malocclusion
- 6.4 Management of Class III malocclusion
- 6.5 Management of open bite, crossbite and deep bite
- 6.6 Cleft lip and palate

Module 7: Surgical Orthodontics & Retention and Relapse

- 7.1 Surgical Orthodontics
- 7.2 Retention & Relapse

Module 8: Recent Advances in Orthodontics

- 8.1 Lab procedures
- 8.2 Genetics in Orthodontics
- 8.3 Computers in Orthodontics
- 8.4 Invisible Orthodontics
- 8.5 Obstructive sleep Apnea
- 8.6 Complications & Limitations of Orthodontics
- 8.7 Lasers in Orthodontics
- 8.8 CAD-CAM Technology
- 8.9 Application of FEM

Suggested Readings:

1. Proffit WR, Fields HW, Larson B, Sarver DM. Contemporary orthodontics. 7th ed. St. Louis: Elsevier; 2023.
2. Graber LW, Vanarsdall RL, Vig KWL, Huang GJ. Orthodontics: current principles and techniques. 6th ed. St. Louis: Elsevier; 2016.
3. Rakosi T. An atlas and manual of cephalometric radiography. 2nd ed.
4. Graber TM, Rakosi T, Petrovic AG. Dentofacial orthopedics with functional appliances. 2nd ed. St. Louis: Mosby; 1997
5. Rakosi T, Jonas I, Graber TM. Orthodontic diagnosis. 1st ed. Stuttgart: Thieme; 1993.