



Study Guide  
OF ENDODONTICS  
FOR BDS 4<sup>TH</sup> YEAR



# **Study Guide** Endodontics

## Department of Operative Dentistry

### **MESSAGE FROM THE PRINCIPAL**

#### **AVICENNA DENTAL COLLEGE**



**Prof. Dr. Sohail Abbas Khan**

**{MDS, Dip Op (Hons) BDS}**

It is a matter of immense honour and privilege as the first Principal of Avicenna Dental College to welcome you to prospectively one of the finest dental institutes in the private sector of Pakistan. Avicenna Dental College is a private dental college, which aims to provide the finest dental education to dental undergraduate student in accordance with the latest trends in Medical Education, and to develop them to practice dentistry in the 21<sup>st</sup> century.

While educating dental students to become licensed, empathetic and competent professionals, Avicenna Dental College endeavours to educate students in a supportive environment in which they provide dental care for a diverse populace. In the times to come, we wish to transform our graduates into unfeigned teachers, researchers and consultants by starting post-graduation programs as well.

Avicenna Dental College aims to achieve an enterprising curriculum integrating the basic sciences with clinical experience while utilizing modern technological modalities.

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In addition to the production of outstanding oral health professionals, we at Avicenna Dental College recognize our responsibility as a private dental institution to the citizens of the country in making the provision of oral the provision of oral health care available to those who are deprived of ready access.

I feel proud to lead this dental establishment such an inspiring time and hope all of you at Avicenna Dental College will share this pride and play your respective roles in materializing the dream of making this institution the premier dental educator in Pakistan.

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## Department of Operative Dentistry

**MESSAGE FROM THE HOD, OPERATIVE DENTISTRY**

**AVICENNA DENTAL COLLEGE**



**Prof. Dr. Sohail Abbas Khan**

**{MDS, Dip Op (Hons) BDS}**

The Department of Operative Dentistry of Avicenna Medical and Dental College is one of the largest departments of faculty of Dentistry. It provides an important role in the College of Dentistry establishing the foundational concepts of dentistry to the pre-doctoral dental students in caries diagnosis, prevention, repair and restorative techniques. The primary focus of the Department of Operative Dentistry's is to provide the knowledge, technical skills, critical thinking and judgment for the diagnosis, prevention, and management of dental caries, non-cariou dental defects (attrition, abrasion, erosion, abfraction, developmental abnormalities, discoloration, and trauma), and elective esthetic smile enhancements. The department is responsible for four clinics namely restorative, endodontic, crown and bridge and pedodontics. The department also carries out the preclinical training/ lectures of 2-year BDS in restorative dentistry and clinical training /lectures of 3'd year BDS and final year BDS in operative dentistry.

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## Department of Operative Dentistry

All full-time faculty in the Department of Operative Dentistry have advanced training in Operative Dentistry. Faculty is recognized for their teaching, research and clinical expertise. In addition, there are excellent clinical facilities for the development of clinical techniques and for clinical research. We also have Phantom Head lab for preclinical restorative techniques. These laboratories and clinical areas are routinely used by the faculty and the graduate students as well as by a selected number of pre-doctoral students.

### **PHANTOM HEAD LAB**

In Avicenna Dental College one unique provision is the phantom head laboratory which plays a pivotal role in gradually

introducing dental students to the structure of human anatomy with special focus on teeth, orientation of a dental workstation as well as patient and doctor posture and positioning. Phantom Heads are sophisticated, life-like manikins which allow rehearsal of dental procedures. With the help of these models, students can practice techniques at an early stage of their training without putting patient safety at risk. All Faculty designated for the department is fully trained and equipped to train and demonstrate to students everything required to restore, preserve a tooth without putting real patients' teeth at risk.

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<b>1</b>	Orientation	<ol style="list-style-type: none"> <li>1. Introduction of Endodontics</li> <li>2. Scope of Endodontics</li> <li>3. Rationale for treatment</li> <li>4. Objective of endodontic treatment</li> </ol>
<b>2</b>	Dental Pulp	<ol style="list-style-type: none"> <li>1. What is the Dental Pulp</li> <li>2. Contents of the pulp</li> <li>3. Response of the pulp to any threat</li> <li>4. Diseases of pulp</li> </ol>
<b>3</b>	History Taking & Diagnosis	<ol style="list-style-type: none"> <li>1. Importance of History</li> <li>2. History questionnaire</li> <li>3. Differential Diagnosis</li> <li>4. Clinical Investigations</li> </ol>
<b>4</b>	Endodontic Radiology	<ol style="list-style-type: none"> <li>1. Endodontic Radiology</li> <li>2. Digital vs Conventional X-Rays</li> <li>3. Clinical Views</li> <li>4. Exposure</li> <li>5. Clinical Techniques</li> </ol>
<b>5</b>	Classification of Pulpal & Peri-Apical Diseases	<ol style="list-style-type: none"> <li>1. Classification</li> <li>2. Diagnosis</li> <li>3. Treatment options</li> <li>4. Case Selection Criteria</li> <li>5. Treatment Planning Stages</li> </ol>
<b>6</b>	Endodontic Instruments	<ol style="list-style-type: none"> <li>1. History Of Endodontic Instruments</li> <li>2. Types of Endodontic Instruments</li> <li>3. Classification of Endodontic Instruments</li> <li>4. ISO Standardization</li> <li>5. Taper &amp; Cross-section</li> <li>6. Materials</li> </ol>

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<b>7</b>	Advancements in Endodontic Instruments	<ol style="list-style-type: none"><li>1. The Ni-Ti System</li><li>2. Types of Engine Driven Systems</li><li>3. Mechanics</li><li>4. Novel Endodontic Systems</li><li>5. Sterilization of Endodontic Instruments</li></ol>
<b>8</b>	Endodontic Anesthesia	<ol style="list-style-type: none"><li>1. Pain Control in Anesthesia</li><li>2. Profound Local Anesthesia</li><li>3. Clinical techniques for mandibular &amp; Maxillary anesthesia</li><li>4. Auxiliary Techniques</li></ol>
<b>9</b>	Endodontic Anatomy	<ol style="list-style-type: none"><li>1. Overview of Endodontic Anatomy</li><li>2. Maxillary Teeth</li><li>3. Mandibular Teeth</li><li>4. Root Canal Morphology</li><li>5. Vertucci's Classification</li><li>6. Access Opening Anatomy</li></ol>
<b>10</b>	Endodontic Access	<ol style="list-style-type: none"><li>1. Armamentarium</li><li>2. Clinical techniques</li><li>3. Canal negotiation</li></ol>
<b>11</b>	Endodontic Irrigants & Disinfectants	<ol style="list-style-type: none"><li>1. Endodontic microbiology</li><li>2. Normal Saline</li><li>3. Sodium Hypochlorite</li><li>4. Aqueous &amp; Viscous Chelators (EDTA)</li><li>5. Toxicity, Uses, Precautions &amp; Clinical Techniques</li></ol>
<b>12</b>	Root Canal Medicaments & Temporization	<ol style="list-style-type: none"><li>1. Types of Medicaments</li><li>2. Clinical procedure</li><li>3. Types of Temporization materials</li><li>4. Clinical procedures for temporization</li></ol>
<b>13</b>	Cleaning & Shaping of Root Canals	<ol style="list-style-type: none"><li>1. Working length determination</li><li>2. The step back technique</li><li>3. The Crown Down Technique</li><li>4. Hybrid &amp; Balanced Force Technique</li><li>5. Common errors</li></ol>

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<b>14</b>	Endodontic Emergencies	Various Endodontic Emergencies & Their Clinical Management
<b>15</b>	Endodontic Obturation	<ol style="list-style-type: none"><li>1. The Gutta percha</li><li>2. Various Endodontic Sealer</li><li>3. Cold Lateral Condensation</li><li>4. Warm Vertical Condensation</li><li>5. Obturation Equipment</li></ol>
<b>16</b>	Open/Immature Apex	<ol style="list-style-type: none"><li>1. Apexification</li><li>2. Apexogenesis</li><li>3. Regenerative Endodontics</li></ol>
<b>17</b>	Restoration of Endodontically Treated Teeth	<ol style="list-style-type: none"><li>1. Difference between Normal Vs Endodontic Restoration</li><li>2. The Core Restoration</li><li>3. Post &amp; Core Philosophy</li><li>4. Ferrule effect</li><li>5. Non Vital Bleaching</li></ol>
<b>18</b>	Endodontic Mishaps	<ol style="list-style-type: none"><li>1. Blocks</li><li>2. Ledges</li><li>3. Perforations</li><li>4. Zipping</li><li>5. Transportation</li><li>6. Instrument Failure</li></ol>
<b>19</b>	Traumatic Dental Injuries	<ol style="list-style-type: none"><li>1. Avulsion</li><li>2. VRF</li><li>3. Intrusion/Extrusion</li><li>4. Complicated/Uncomplicated Fractures</li><li>5. IADT Guide Lines</li><li>6. Treatment Procedures</li><li>7. Replantation</li></ol>
<b>20</b>	Pathologic Root Resorption	<ol style="list-style-type: none"><li>1. Internal &amp; External Root Resorption b</li><li>2. Transient/Inflammatory Resorption</li><li>3. Treatment/Management</li></ol>



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<b>21</b>	<b>Non Surgical Retreatment</b>	<ol style="list-style-type: none"><li>1. Reasons of Failure</li><li>2. Re-access into Root canal system</li><li>3. Removing Crowns/Posts/Old restorations</li><li>4. Clinical Techniques for GP removal</li><li>5. Organic Solvents</li></ol>
<b>22</b>	<b>Surgical Endodontics</b>	<ol style="list-style-type: none"><li>1. Indications/Contra-indications</li><li>2. Hemisection/Bisection</li><li>3. Clinical Techniques</li><li>4. Root end resection Apicectomy</li><li>5. Retrograde filling materials</li><li>6. Retrograde filling</li></ol>
<b>23</b>	<b>Endo-Perio Lesions</b>	<ol style="list-style-type: none"><li>1. Clinical manifestations of Endo-Perio Lesions</li><li>2. Management</li></ol>