

## Engaging Strategies for Teaching Anatomy: Traditional Methods and Adaptations During the COVID-19 Pandemic

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### ABSTRACT

Anatomy forms the basis for the practice of medicine. Knowledge of anatomy is essential for medical and surgical specialization, diagnostic imaging, surgical procedures, rehabilitation, and bodily restoration. Rehabilitation and bodily restoration process. Technical and anatomical language must be known for pharmacology, Pathology, Physiology and Forensic Medicine, patient assessment and surgical and therapeutic procedures. Different methods have long been adopted for teaching anatomy. The most important method includes the dissection of human cadavers. During pandemic of COVID-19 remote modalities were adapted. Students and teacher were trained; online classes were started that all were interactive. Online examination was also conducted and showed satisfactory results. Anatomy is the cornerstone of the curriculum of the basic medical sciences in medical institute all over the world.<sup>1</sup> The Anatomy is defined as branch of Biology dealing with the structures of organisms.<sup>2</sup>

Since anatomy is a vast subject, it is divided into different sub disciplines, including General anatomy, Gross anatomy including systemic and regional<sup>3</sup>, Microscopic anatomy or histology, Development anatomy or embryology, Neuro anatomy, Clinical and applied anatomy<sup>4</sup>, Forensic anatomy, Radiological anatomy and, Surface anatomy is not less important as it provide information about structures that may be observed or palpated beneath the skin. Clinical anatomy is most important as it correlates the bodily structures to function important in the practice of medicine and dentistry and allied health sciences. It incorporates the regional and systemic approach to study anatomy.

The anatomy involves the basic knowledge and needs lot of memorizations for purpose of application in diagnosis and treatment of patients. For centuries the following traditional methods have been adopted. In addition, mobile augmented policy has come into practice

1. The traditionally frequent method of teaching is the chalk and board method. In this method teacher writes the key words and makes the diagrams on the board.

2. Power point presentation is also category coming under the traditional method. In this method we use internet smart phones and tablets.<sup>5</sup>

3. Dissection methods still

stand the best. In this method the dead bodies processed, embalmed and formalized. Turpentine oil is also applied to make the body dissectible and clear of any infection, Then the students do the dissection according to the steps given in the book. The teacher first demonstrates the salient features about surface anatomy and steps of dissection. The students start from superficial to deep structures exposing and identifying the superficial fascia nerves. veins and arteries the deep fascia, after that the muscles organs and deep nerves and vessels are identified. Including important relations.<sup>6</sup> Due to limited availability of cadavers and high expenses to keep and maintain the bodies the other supplement method of teaching has been adapted such as dissection educating videos and films on gross anatomy.<sup>7,8</sup>

4. Small group discussion and tutorial

5. Giving the students assignments and presentation on difficult topics.<sup>9</sup>

6. Slideshare.

7. Teaching on plastic models and specimens.<sup>10</sup>

The Recent trends in Anatomy education demand great emphasis on conceptual understanding of the discipline leading to better knowledge of procedural skills and problem-solving ability. However, strategy should be to keep the balance between conceptual learning and procedural skill. To achieve

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the purpose, the infrastructure is being improved. Other teaching aids are also used for crystal clear concept.

#### **Teaching strategy during COVID - Pandemic**

In Jan 30, the W.H.O declared COVID-19 a global health emergency and face to face teaching was stopped.<sup>11</sup> Educational institution closure occurred due to COVID-19 Pandemic 2019. It has been estimated that 107 countries closed the educational institutions. It has also been estimated that half of the world student population was affected by COVID-19 pandemic.<sup>12</sup> Pakistan universities and institute of higher education moved to online education, the students by sitting in front of computer screen according to the given timetable.<sup>13</sup> As anatomy teachers, we adopted the following strategies for interactive online classes. Teacher and students were given short training for interactive online classes.

- Internet related issues were solved. Zoom software was installed, teachers enhanced students learning ability and got their feedback. The technology support was available to remove the fault if any occurred during the lectures.
- The lectures of teachers were also recorded.
- Teachers adopted assessment policies and students were given MCQs at the end of lectures. In short teaching material relevant software installation and technology supplies are mandatory steps for online classes and IT infrastructure.<sup>14</sup>

It is again emphasized that our lectures were interactive and were also supported by videos. We also conducted viva at the end of each block. Attendance record was also kept and we were highly satisfied for positive attitude of the students towards online learning.<sup>14,15</sup>

Regarding the laboratory work the student were called to the institute in short groups strictly observing the SOPs. The slides were shown under the microscope after demonstration. The students were then asked to draw the same diagrams in their histology practical notebooks.<sup>15</sup>

Moreover, to improve the student's engagement and interaction we have shifted the focus of teaching from knowledge transmission to knowledge construction and to get the students involved in the research.<sup>16</sup>

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**CONFLICT OF INTEREST**

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**KS:** Conception, Design of the work, Acquisition, Data collection, Interpretation of data for the work Data analysis and Drafting, Reviewed, Final approval, Agreement to be accountable.

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**DATA SHARING POLICY**

The data that support the findings of this study are available from the corresponding author upon reasonable request.



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