

# Dissection videos as a supplementary teaching method for first MBBS students

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## Abstract

Learning gross anatomy is very important for medical students to get a first three dimensional image about the structure of the human body which is the basis for understanding principles of modern medical science. Supplementation of dissection videos before actual cadaveric dissection helps students to increase their subject interest, subject knowledge and to improve their examination performance. It also improves dissection skill and reduces the dissection time. During undergraduate teaching, video clips of concerned topic were shown to 100 MBBS first year students at the end of theory lecture of related topic. Anatomical structures related to that dissection region were shown in videos, layer wise from superficial (skin incision) to deep (fibro-osseous) aspect. Then students went to dissection hall and dissected related region on human cadaver start from skin incision to all aspects of dissection. Feedback was taken from all 100 first MBBS students with the help of questionnaire. From this study we can conclude that, exposure of dissection videos before actual cadaveric dissection helps students to increase their subject interest, create 3D image, locate as well as differentiate different structures and to improve dissection skill. Thus this method can supplement human cadaveric dissection but should not replace human cadaveric dissection.

**Key Words:** learning gross anatomy, cadaveric dissection, use of dissection videos.

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MBBS students before actual cadaveric dissection. In support of this educational approach, several studies have reported improved cadaveric dissection performance by using dissection videos as educational resources. Supplementation of dissection videos before actual cadaveric dissection helps students to increase their subject interest, improve subject knowledge, improve their examination performance, improve dissection skills and reduce the dissection time. This method can supplement human cadaveric dissection but should not replace actual human cadaveric dissection. To improve dissection skill and subject knowledge by increasing student's interest to generate competent health professionals.

## INTRODUCTION

Learning gross anatomy is very important for medical students to get a first three dimensional image about the structure of the human body which is the basis for understanding principles of modern medical science. During cadaveric dissection, students gain visual understanding of the organs, systems and their relationships to one another. Traditionally this visual understanding has been obtained by gross dissection. In this study we used cadaveric dissection videos as supplementary tool for giving instructions to first year

## MATERIAL AND METHODS

The study was conducted at Anatomy department of Dr. Shankarrao Chavan Government Medical College, Nanded. This was a questionnaire survey of all 100 First Year MBBS students of this institute for their self perceived assessment regarding pre-exposure of dissection videos before actual cadaveric dissection. We dissected five different regions on embalmed cadaver which was used for post graduation dissection teaching.

Video clips of these regions were then taken. During undergraduate teaching these video clips of concerned topic were shown to 100 first year MBBS students at the end of theory lecture of related topic. Anatomical structures related to that dissection region were shown in videos, layer wise from superficial (skin incision) to deep (fibro-osseous) aspect. All important structures in these dissection videos (ex boundaries, walls, contents) were

pointed and asked students to repeat all. Then students went to dissection hall and dissected related region on human cadaver start from skin incision to all aspects of dissection. During that dissection all batches were observed by their batch teachers. Same method was repeated for dissection of five different regions. Then feedback was taken from all 100 first MBBS students with the help of questionnaire.

## RESULTS

**Table 1:** Responses to the questionnaire are interpreted in tabular form

Question for Students (Total students 100)	Responses of Students		
	Yes	No	No Response
Is it helpful to take incision over cadaver?	97	03	NIL
Is this video helpful for layer wise dissection?	94	03	03
Is this video helpful to differentiate body structures from one another?	94	03	03
Is it helpful to identify different muscles?	87	11	02
Is it helpful to define locations of all structures in dissecting parts?	78	19	03
Is it helpful to create 3D image of all structures in dissecting parts?	75	16	09
Is this method helpful to improve your subject knowledge?	96	02	02
Is this method helpful to reduce total dissection time?	81	13	06
Will this method improve your performance in examinations?	81	09	10
Is this method beneficial than traditional one?	74	12	14
Is this method increases your interest in cadaveric dissection?	90	05	05
Will this video improve your dissection techniques?	77	11	12
Whether any other important region can be studied by this method?	79	05	16
Do you think using dissection videos of total body parts can replace the cadaveric dissection from syllabus?	03	94	03

**Table 2:** Statistical Analysis

Sr. No.	Question	Responses of Students			SEP	L.L. of Proportion (%)	U.L. of Proportion (%)
		Yes	No	No Response			
1	Is it helpful to take incision over cadaver?	97 (97%)	03 (3 %)	00	1.71	94	100
2	Is this video helpful for layer wise dissection?	94 (97 %)	03 (3 %)	03	1.76	90	97
3	Is this video helpful to differentiate body structures from one another?	94 (97 %)	03 (3 %)	03	1.76	90	98
4	Is it helpful to identify different muscles?	87 (89 %)	11 (11 %)	02	3.19	81	93
5	Is it helpful to define locations of all structures in dissecting parts?	78 (80 %)	19 (20%)	03	4.03	70	86
6	Is it helpful to create 3D image of all structures in dissecting parts?	75 (82 %)	16 (18 %)	09	3.99	67	83
7	Is this method helpful to improve your subject knowledge?	96 (98 %)	02 (2%)	02	1.43	93	99
8	Is this method helpful to reduce total dissection time?	81 (86 %)	13 (14%)	06	3.56	74	88
9	Will this method improve your performance in examinations?	81 (90%)	09 (10%)	10	3.16	75	87
10	Is this method beneficial than traditional one?	74 (86 %)	12 (14 %)	14	3.74	66	81
11	Is this method increases your interest in cadaveric dissection?	90 (95%)	05 (5 %)	05	2.29	85	95
12	Will this video improve your dissection techniques?	77 (87 %)	11 (13%)	12	3.53	70	84
13	Whether any other important region can be studied by this method?	79 (94 %)	05 (6 %)	16	2.58	74	84
14	Do you think using dissection videos of total body parts can replace the cadaveric dissection from syllabus?	03 (3 %)	94 (97 %)	03	1.76	90	98

SEP = Standard Error Proportion, L.L = Lower Limit, U.L. = Upper Limit; Standard Error of Proportion (SEP) =  $\sqrt{\frac{p \times q}{n}}$  p= positive character, q = 1-p ( Negative character); 95 % Confidence Interval for proportion =  $p \pm 2 * SEP$ , Lower Limit of proportion =  $p - 2 * SEP$ , Upper Limit of proportion =  $p + 2 * SEP$

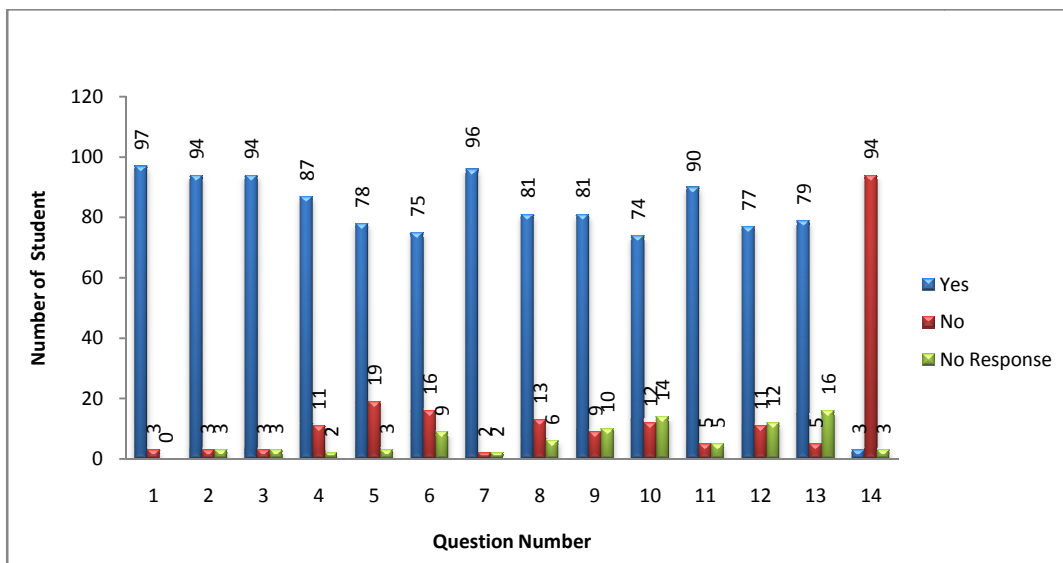


Figure 1: Student response for total Cadaveric dissection using Videos Vs Traditional method

Beside this many students had written special comments regarding usefulness of these videos for improving dissection skills, getting 3D orientation, increasing interest in subject and reducing confusion during actual dissection. We came across many special comments demanding that even though showing dissection videos are much helpful but it cannot replace actual human dissection, rather student's demand for videos as supplementary to actual human dissection.

## DISCUSSION

Human cadaveric dissection is the most important method for learning Human Anatomy. Now a day's variety of material used to teach Human Anatomy consists of Models, Specimens, 3D Animations. Paolo Matteucci *et al*<sup>1</sup> stated that endoscopy can be used to study human anatomy. Dr J L Burton *et al*<sup>2</sup> used videos for necropsy education as teaching tool. Adrian Mendez *et al*<sup>3</sup> used video teaching modules as effective tools for enhancing student competencies and technical skills in the operating room. Pananghat A. Kumar *et al*<sup>4</sup> stated that videos of laparoscopic procedures can be used more widely in order to make the teaching of anatomy more interesting and relevant to clinical medicine. Jose Aderval Aragao *et al*<sup>5</sup> Used a lot of teaching assistant techniques to increase student interest in learning human anatomy. Amanda L Roshier *et al*<sup>6</sup> stated that students had a positive perception of video usage in higher education. Results of our study indicate that human cadaveric dissection is must to learn human anatomy matches with result of Barbara Kraszpuska's study<sup>7</sup>. Dr. Khadija iqbal<sup>8</sup> said that this type of teaching is very useful for undergraduate as well as postgraduate students. Veronica Papa *et al*<sup>9</sup> thought that learning gross anatomy through dissection

and prosection is better method, since it gives a 3D experience in real life that cannot be attained by the most advanced digital anatomy programs available. Our study also represents that students were happy with dissection videos. They get guidance from dissection videos for skin incision, for structure location, for structure differentiation, to create 3D image in their mind. They strongly force us to use this method only to supplement human cadaveric dissection not to replace human cadaveric dissection. Students thought that seeing dissection videos before actual cadaveric dissection is better method than doing dissection without seeing videos.

## CONCLUSION

From this study we can conclude that, exposure of dissection videos before actual cadaveric dissection helps students to increase their subject interest, create 3D image, locate as well as differentiate different structures and to improve dissection skills. Thus this method can supplement human cadaveric dissection but should not replace human cadaveric dissection.

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