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Interactive Learning Paper Model of Inguinal Canal



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Introduction

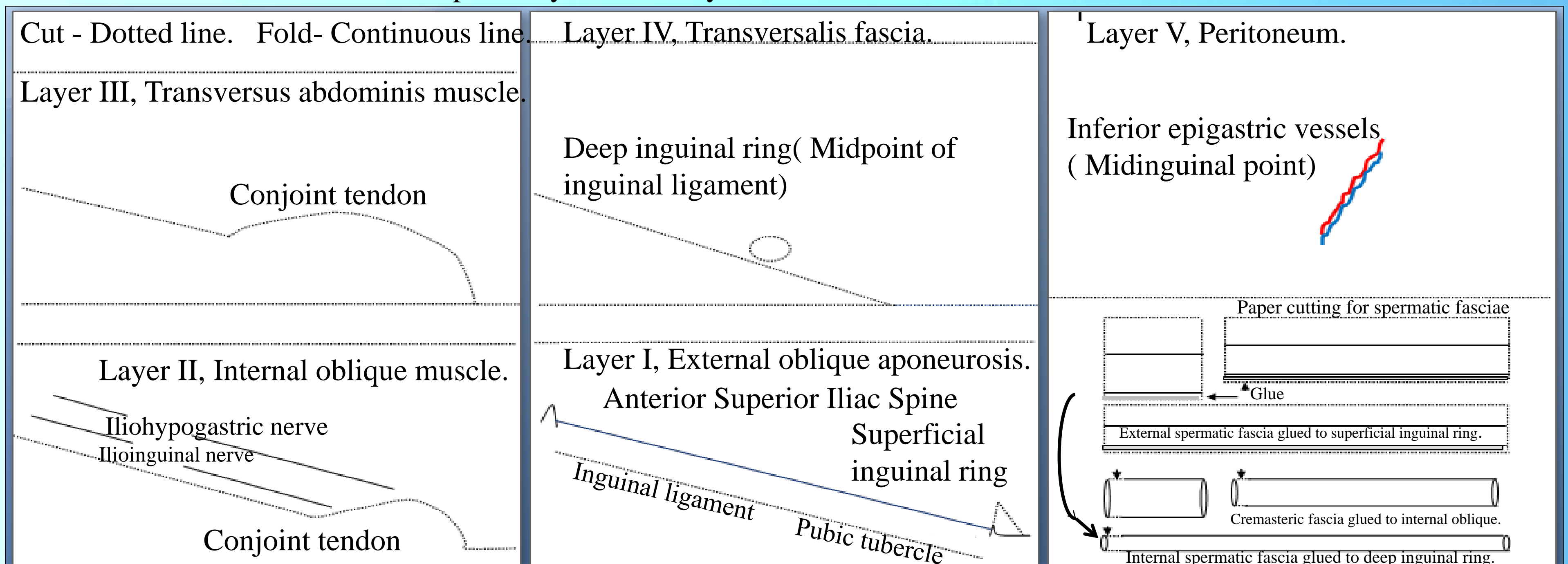
The inguinal canal is one of the most complex anatomic areas of the human body even though it has been the subject of great interest to anatomists and surgeons because of its clinical importance.[1-3].

Materials and Methods

The anatomical diagrams were prepared on Microsoft Word 2007. The year two medical students were assigned to construct the inguinal canal using three A-4 papers, ordinary scissors and glue. The efficacy of the model construction is evaluated by testing 10 questions regarding the anatomy of inguinal canal before(pre-test) and after(post-test) doing the construction. The 5-point scale questionnaire was used to elicit the students' views on different teaching methods in our university. The questionnaire (response rate of 60.19%), which included a free comments section, was completed by 62 second-year medical students.

Objectives

1. to provide a simplification and in-depth understanding of the inguinal canal anatomy.
2. to incorporate time-efficient and interactive method in learning.



Assessment of teaching methods on Inguinal Canal Anatomy

5= excellent, 4= very good, 3= good, 2= fair, and 1= poor

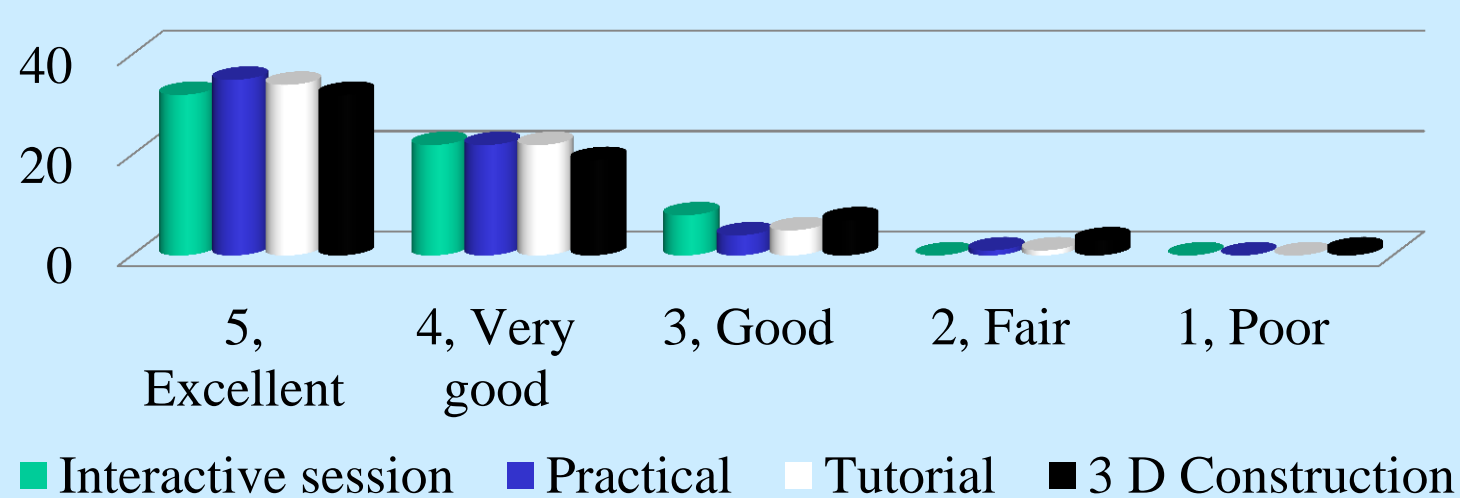
Teaching Methods	Grade	Comment
1. Interactive session(Lecture)		
2. Practical		
3. Tutorial		
4. Paper Model Construction		

Results

Ninety six students performed the construction and most of them completed within an hour. Scores on the anatomy pre-test and post-test were compared. The mean pre-test score was 8.406/10 and the mean post-test score was 9.309 /10. It was found that there was a significant increase in post-test score ($P<0.05$). (Table 1)

The students(sixty two) also responded similarly to interactive session, practical , tutorial and 3-D paper model construction ($P>.05$) in the 5-points scale questionnaire. (Figure 1)

Figure 1. Assessment of teaching methods on Inguinal Canal anatomy

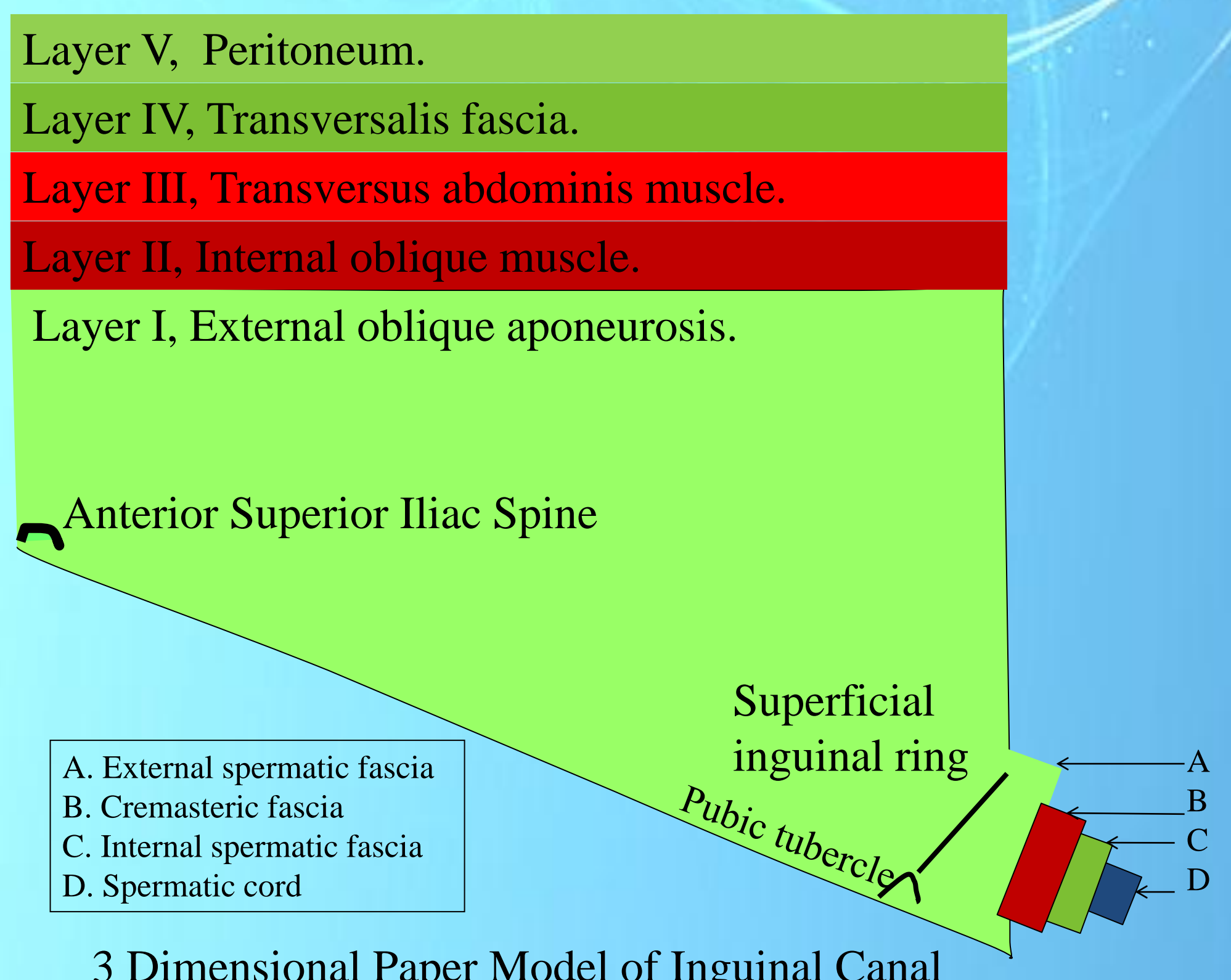


Conclusion

We concluded that the 3-D paper model provides the opportunity to learn the inguinal structures in a short period of time especially when taking constraints of time and the availability of other resources into account. Moreover, this model is inexpensive and easy to construct and a valuable supplement to conventional teaching methods.

References

1. MD Barry D. Mann. Teaching three-dimensional surgical concepts of inguinal hernia in a time-effective manner using a two-dimensional paper-cut. The American Journal of Surgery, Volume 173, Issue 6, June 1997, Pages 542-545.
2. Sophia Sakellariou . Design and Implementation of Augmented Reality Environment for Complex Anatomy Training: Inguinal Canal Case Study .Lecture Notes in Computer Science, 2009, Volume 5622/2009, 605-614 .
3. John J. Jacobs and Donald M. Alvarado. A Model of the Inguinal Canal; The Anatomical Record 201: 573-576(1981).



3 Dimensional Paper Model of Inguinal Canal

Table 1. Pre-test & Post-test Scores and descriptive statistics

Test	Average score	Minimum	Maximum	Standard deviation	P value
Pre-test(96 students)	8.406	4	10	1.350073	<0.000
Post-test(68 students)	9.309	5	10	0.796585	