

A Systematic Review of the Effectiveness of Different Learning Strategies within Gross Anatomy Courses: Cadaveric Dissection Versus Alternatives

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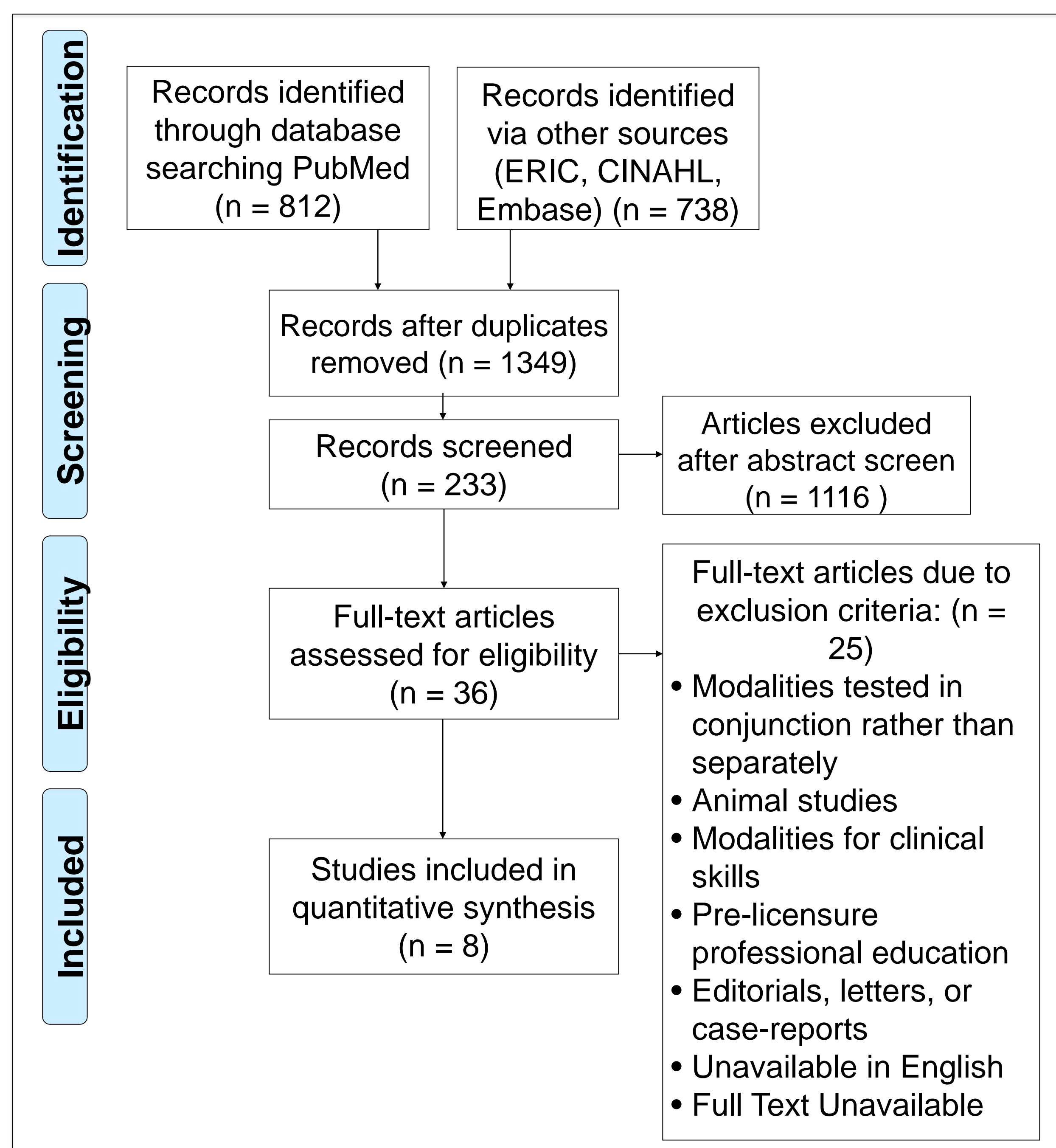
Background

Health graduate programs are experiencing increased pressure to lower cost and save time. This has led to examination if cadaveric dissection is the most effective approach for anatomy instruction.^{2,5}

Purpose

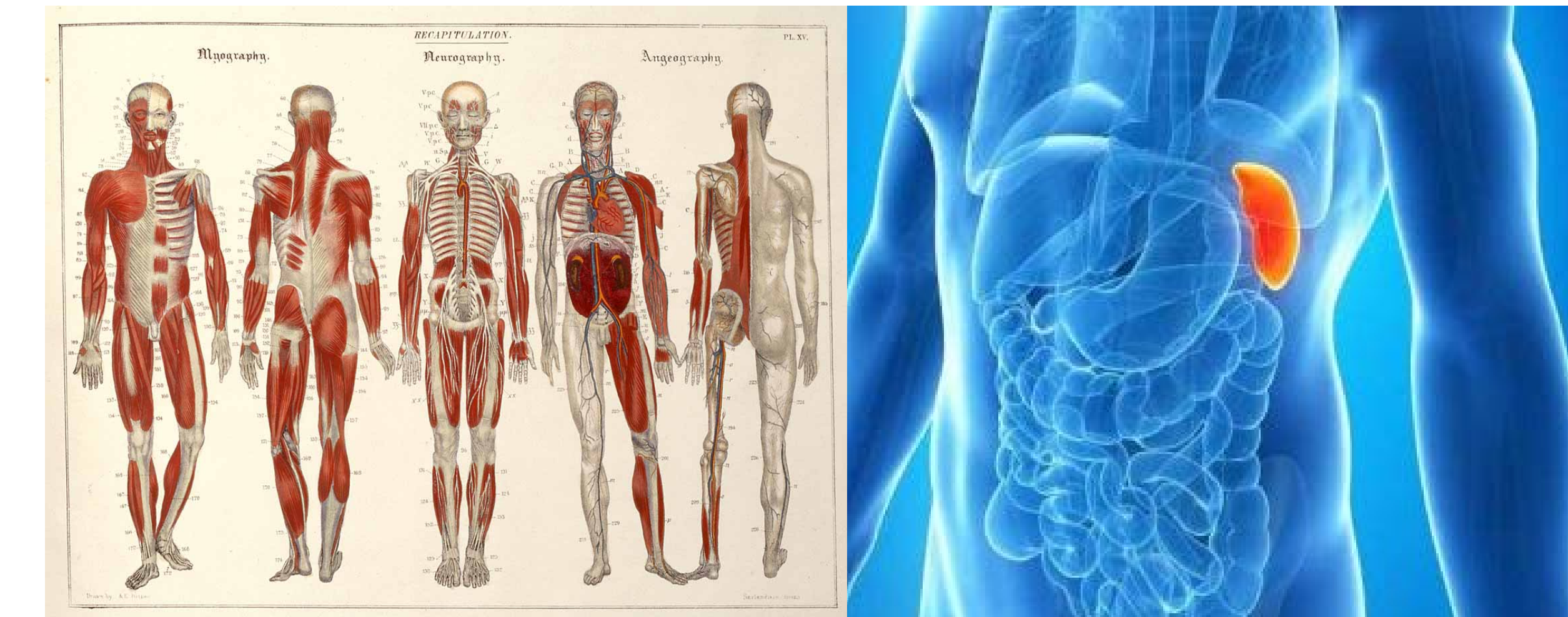
To review available literature and grade evidence of student learning outcomes when taught through cadaveric dissection versus other educational strategies.

Methods



Results

Article	Population	Intervention	Comparator	Outcomes	Study Type	BEME and Kirkpatrick Scores
Anderson et al., 2000	PT students	Cadaver dissection	Computer aids	No significant difference	Cohort	BEME: 4 Kirkpatrick: 2
Biasutto et al., 2006	Medical students	Cadaver dissection	Computer aids	Significant difference	Cohort	BEME: 3 Kirkpatrick: 2
Bukowski et al., 2002	PT students	Cadaver dissection	Computer aids	No significant difference	Cohort	BEME: 3 Kirkpatrick: 2
Erkonen et al., 1992	MD students	Cadaver dissection	Videos	No significant difference	Randomized trial	BEME: 4 Kirkpatrick: 2
Nnodim et al., 1996	MD students	Cadaver dissection	Prosection	No significant difference	Matched cohort	BEME: 4 Kirkpatrick: 2
Plack et al., 2000	PT students	Cadaver dissection	Computer aids and prosection	No significant difference	Ex Post Facto (retrospective) design	BEME: 4 Kirkpatrick: 2
Stanford et al., 1994	MD students	Cadaver dissection	Computer aids	No significant difference	Randomized trial	BEME: 4 Kirkpatrick: 2
Yeager et al., 1996	MD students	Cadaver dissection	3/4 Students studied pre-dissected material	No significant difference	Randomized trial	BEME: 3 Kirkpatrick: 2



Teaching Strategies
 Left: Dissection⁹ Right: Computer Aids¹⁰

Educational Relevance

- Cadaveric dissection has long been considered the gold-standard for anatomy education in health professional curricula.¹
- The results of this systematic review suggest that research does not back traditional thought.
- With further research and implementation of other anatomy teaching strategies, curriculum may change.

Conclusions

- 7/8 studies concluded that there was no statistically significant difference in student scores when two different modalities were used to teach anatomy.
- 8/8 studies scored a 2 on the Kirkpatrick scale indicating that learning was achieved through the teaching intervention.
- 3/8 studies scored a 3 on the BEME indicating that conclusions can probably be based on results, and 5/8 studies scored a 4 indicating that results are clear.
- Future studies may choose to explore how the strategy used affects not only test scores, but also students' ability to perform as practitioners.

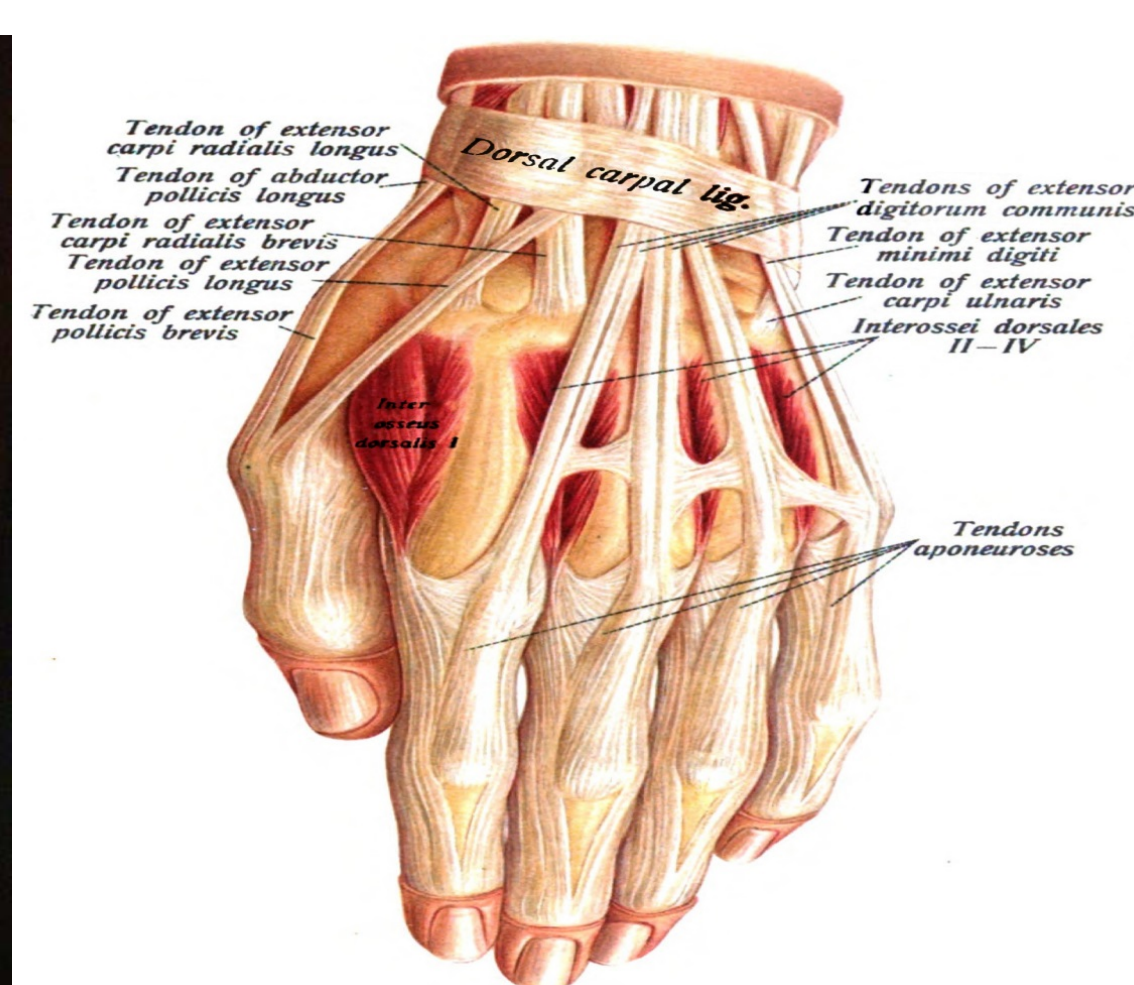
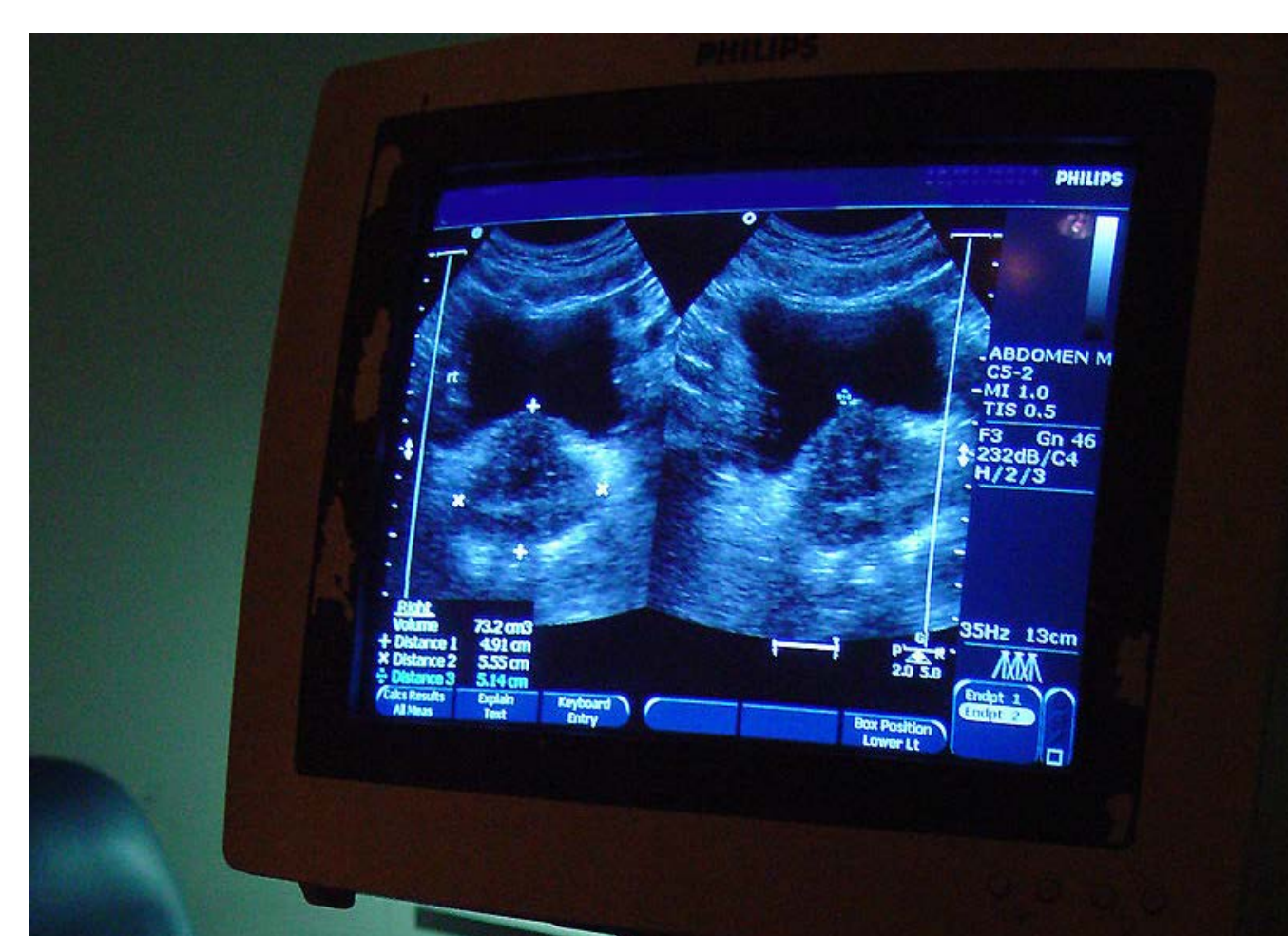
Acknowledgements / References

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- Images:
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Scores of Quality and Effectiveness of Studies^{3,4}

Score	Definition	# of Studies
BEME Scores: Quality of evidence		
1	No clear conclusions	0
2	Results Ambiguous	0
3	Conclusions can probably be based on results	3
4	Results are clear	5
5	Results are unequivocal	0
Kirkpatrick's Scores: Effectiveness of intervention		
0	None	0
1	Reaction	0
2	Learning	9
3	Behavior	0
4	Result	0



Teaching Strategies
 Left: Ultrasound⁷ Right: Prosection⁸