

SynDaver®: as a tool for anatomical teaching?

Response to the letter to the Editor:

SynDaver®: as a tool for anatomical teaching and medical education

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Dear Editor,

I have analyzed with great interest the letter to the Editor from Uribe et al. about the use and utility of SynDaver® synthetic cadaver.

Anatomical education has lately been changing to adapt to the current demands of the health science professions, and new teaching methodologies have supplemented traditional teaching methods due to the limited viability of time and human cadavers, the task of preparing and collecting embalmed cadavers, and the lack of instructors experienced in dissection.

Between the new tools, the SynDaver® synthetic cadaver seems to be becoming very popular in some anatomical departments for its versatility and easy conservation. The manufacturer considers that the artificial human tissue closely resembles the live human environment (Sakezles, 2009).

From my point of view, some questions concerning the SynDaver® synthetic cadaver deserve to be analyzed: 1. is the utility of synthetic cadavers different from the cheaper plastic models? 2. could this new resource replace the use of the human cadaver? 3. is it possible to dissect a synthetic cadaver?

Regarding the first point, although the SynDaver® synthetic cadaver is offered as a high-fidelity model, there is no proof of this material's effectiveness in gross anatomy teaching, considering its expensive cost. The letter's authors stated that students perform better on final exams when they dissect these types of material compared to 3D models and anatomical drawings, but there are no systematic studies about its effectiveness or comparison with other teaching resources. Supporting the synthetic cadaver effectiveness, the authors reference the work of Richardson et al. (2020), who explore this material's utility and student perception in an undergraduate human anatomy course. Using a systematic study, the authors demonstrated its utility by improving student grades by comparing synthetic cadavers and models with only models, but not with other teaching resources. Another referenced author exposes the tool as a new technologic resource to the study of anatomy with clinical orientation, considering that it is adequate to study larger anatomical structures, different organs, and topography, but they omit the proof of their efficacy (Hecht and Larrazabal, 2018).

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On the other hand, the student perception is not always optimistic about the tool's utility in understanding the structures. While the synthetic cadaver could help understand the musculoskeletal relationship, it did not help understand the neurovascular structures (Mitchell et al., 2016). In my opinion, more studies are necessary to verify the efficacy of this material in teaching-learning anatomy, considering its cost.

Concerning the second point, despite the new technology used in its elaboration, the high-fidelity synthetic cadaver cannot become a substitute for human cadavers in teaching anatomy, not only because the structures, disposition, and joints between them are not genuine, but because many professional competencies derived from teaching anatomy, such as self-awareness, teamwork or reflective practice must be attributed to the use of cadaver dissection.

Concerning dissection, it is evident that the dissection in the SynDaver® synthetic cadaver is more a separation into pieces of its constitutive elements, such as it happens in the plastic models, than a dissection considered as a possibility to separate the structures along natural planes of cleavage, removing organs and identifying anatomical structures and its variability. Synthetic cadavers could be an option in learning-teaching anatomy, where several high-tech modalities are used for better understanding. However, it cannot replace cadaver-based instruction in anatomy in medical studies, and it is expensive concerning its usefulness.

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