

Randomized controlled didactical trial to evaluate usefulness of interactive media to teach anatomy in a university setting. A pilot study

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Anatomy has traditionally been taught via dissection and didactic lectures [1]. The rising prevalence of informatics play an increasingly important role in medical education [2], potentially representing an integrative system to be combined with the dissection [3].

We hypothesized that new technologies can express added value to the dissection, which remains the classical method of teaching anatomy.

We investigated this question in the optional anatomic dissection course organized for the second year medical students (n 30). After a preliminary questionnaire aimed to collect student's personal data, we randomized them to a first group, which applied to an interactive media for 20 minutes, and a second one applied to textbooks of topographical anatomy for 20 minutes. The topic of interest was stated as being the forearm (bones, muscles, vessels and nerves). Following this preliminary step, they all applied to the gross dissection of a human forearm, subsequently surveyed by a test aimed to evaluate their retained information with regard to 2D and 3D anatomical structures other than basic anatomical knowledge. The return rate questionnaire was 76.7%. We found a comparable performance in terms of basic anatomical knowledge regarding bones, vessels, nerves but not muscles and 2D reporting of anatomical structures, for which the interactive media were of benefit. Likewise, the group which used interactive media showed a better 3D reporting of overall anatomical structures, among which muscles location. By logistic regression adjusted for confounding factors, we showed the independent role in predicting the highest results (scores $\geq 70\%$) of both interactive media and highest academic scores for anatomy.

The overall evidence was in support of the use of interactive informatics to integrate the learning of human anatomy. This would be of benefit with particularly reference to the understanding of 3D spatial relationships between anatomical structures, by allowing the student to both deconstruct (i.e. virtually dissect) and reconstruct discrete regions of the body, hence visualizing and manipulating complex anatomical structures using 3D models. Nevertheless, these upcoming anatomy applications serve as useful integrative learning tools, when used in conjunction with traditional practical dissection.

References

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Key words

Education, cadaver dissection, interactive media, randomized trial.