Assessing the Effectiveness of Virtual Laboratory Tutorials in the Preparation of Students' Performance of Immunoassays

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ABSTRACT

It is necessary for medical laboratory technology (MLT)/ medical laboratory science (MLS) faculties to seek cost-effective and time-saving resolutions to the student laboratory practice due to the pressure of the shrinking budgets and multiple tasks requirement. Therefore, the laboratory practice for clinical immunology classes has been disregarded in many MLT/MLS programs. An increasing demand for online courses has made the virtual laboratories a useful resource to improve students' practical laboratory performance and also could be a new lab cost-cutting approach for MLT/MLS programs. The purpose of this study was to investigate if the virtual laboratory tutorial could be used to replace a face-to-face tutorial in the preparation of students' laboratory exercises in immunological assays. Students enrolled in the Clinical Immunology class are randomly selected into 2 groups: a virtual laboratory group and a face-to-face group. All students are assessed on their performance of different immunoassays in a physical lab for the final laboratory scores. Students are also administered a pre- and posttest survey to determine their lab experience, self-efficacy, and improvement in the field of immunology prior to and after the experiment exercises. The performance difference between the 2 groups will be analyzed to assess the effectiveness of the virtual lab tutorials for the training of immunologic techniques. The study contributes to the budget-cutting and time-saving resolutions of the on-campus immunology education but also develops a new effective tutorial method for the online immunology education.

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