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Can Thiel Fixation provide a Superior Full Body Dissection Experience to Traditional Formalin Fixation in Preclinical Undergraduate Medical Education: A Mixed Methods Case Study.

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Abstract

Background: Dissection has stood as a fundamental aspect of medical education in the United Kingdom since its decriminalisation in 1982, during which time the fixation process has almost ubiquitously utilised formalin, an aqueous solution of formaldehyde, for preservation of the cadaver. However, novel fixation techniques such as the Thiel method have been purported to provide a more authentic dissection experience for students. In 2022 our medical school switched from formalin to Thiel-based cadaver fixation which presented a unique opportunity to conduct research into the impact of this change on students' experience of the dissection process.

Methods: The aim of this study was to compare students' experience of the dissection process using Thiel-fixed cadavers to formalin-fixed cadavers. Questionnaires were distributed to students who had undergone dissection of only Thiel-fixed or formalin-fixed cadavers, and interviews were conducted with students who had undergone a mixture of both.

Results: The questionnaires showed no significant difference between the two groups (p <.09822) with a median response of 3.75 and 4.0 in the Thiel and formalin groups, respectively. The interviews identified a clear preference towards Thiel, however, with students finding such cadavers more flexible, sectile, and lifelike in appearance. However, some students had complaints around the quantity of fluid produced by the Thiel cadaver, and how the increased realism of the cadaver made the dissection experience more unpleasant for them.

Conclusions: The overall findings of this research indicated Thiel may offer some benefit over formalin for the purpose of cadaveric dissection in medical education, however some

limitations to this method were raised and the limited number of participants posed challenges in determining a significant outcome from the data. More research would therefore be warranted, particularly large-scale quantitative studies, before making modifications to current practices.

Keywords: Anatomy | Dissection | Education | Thiel | Formalin

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