

AB061. SOH21AS058. Evaluating the use of a proximal femoral nail module using a virtual reality orthopaedic simulator: a face and construct validity study

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Background: Changing surgical practice due to the European Working Time Directive, shorter training times, and novel technological advancements compel current surgical curricula to find innovative methods of training to ensure adequate development and retention of surgical skills in our trainees. Virtual reality simulation as a learning tool to transcend current training methods have been of recent interest. This study aimed to identify the face and construct validity of the Precision OS trauma module proximal femoral nail procedure.

Methods: A comparative interventional study was carried out in a regional orthopaedics trauma unit hospital. Volunteers were stratified into novice, intermediate and expert groups based on self-reported levels of experience. Each participant carried out a simulated proximal femoral nail on an immersive virtual platform following instruction on its use, with objective metrics such as time and X-rays, and novel metrics calculated by the simulation module recorded. Face validity was also assessed.

Results: The proximal femoral nail module demonstrated construct validity. Kruskal Wallis test demonstrated a statistically significant difference across all groups novel performance ($P=0.018$). Intermediate surgeons performed significantly better than novices ($P=0.022$), with shorter

procedural times ($P=0.018$) Three of the intermediate group achieved the proficiency level set by the expert group, with no significant difference noted between these two groups ($P=0.06$).

Conclusions: The proximal femoral nail module demonstrated good face, and construct validity. Further research is needed to evaluate virtual reality system uses in trauma cases, the potential for acquisition of non-technical skills and the transfer of these skills to the operating room.

Keywords: Orthopaedics; simulation; surgical training; trauma; virtual reality

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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