# Three-Dimensional Modeling May Improve Surgical Education and Clinical Practice

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## Abstract

*Background*. Three-dimensional (3D) printing has been used in the manufacturing industry for rapid prototyping and product testing. The aim of our study was to assess the feasibility of creating anatomical 3D models from a digital image using 3D printers. Furthermore, we sought face validity of models and explored potential opportunities for using 3D printing to enhance surgical education and clinical practice. *Methods*. Computed tomography and magnetic resonance images were reviewed, converted to computer models, and printed by stereolithography to create near exact replicas of human organs. Medical students and surgeons provided feedback via survey at the 2014 Surgical Education Week conference. *Results*. There were 51 respondents, and 95.8% wanted these models for their patients. Cost was a concern, but 82.6% found value in these models at a price less than $500. All respondents thought the models would be useful for integration into the medical school curriculum. *Conclusion*. Three-dimensional printing is a potentially disruptive technology to improve both surgical education and clinical practice. As the technology matures and cost decreases, we envision 3D models being increasingly used in surgery.

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