

Title:	Injecting Realism in Surgical Training-Initial Simulation Experience With Custom 3D Models
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DOI:	10.1016/j.jsurg.2013.08.010
Abstract:	<p>The traditionally accepted form of training is direct supervision by an expert; however, modern trends in medicine have made this progressively more difficult to achieve. A 3-dimensional printer makes it possible to convert patients imaging data into accurate models, thus allowing the possibility to reproduce models with pathology. This enables a large number of trainees to be trained simultaneously using realistic models simulating actual neurosurgical procedures. The aim of this study was to assess the usefulness of these models in training surgeons to perform standard procedures that require complex techniques and equipment.'</p> <p>METHODS: Multiple models of the head of a patient with a deep-seated small thalamic lesion were created based on his computed tomography and magnetic resonance imaging data. A workshop was</p>

	<p>conducted using these models of the head as a teaching tool. The surgical trainees were assessed for successful performance of the procedure as well as the duration of time and number of attempts taken to learn them.</p> <p>FINDINGS: All surgical candidates were able to learn the basics of the surgical procedure taught in the workshop. The number of attempts and time taken reflected the seniority and previous experience of each candidate.</p> <p>DISCUSSION: Surgical trainees need multiple attempts to learn essential procedures. The use of these models for surgical-training simulation allows trainees to practice these procedures repetitively in a safe environment until they can master it. This would theoretically shorten the learning curve while standardizing teaching and assessment techniques of these trainees. (C) 2014 Association of Program Directors in Surgery</p>
Keyword:	neurosurgery; simulation; training; clinical skills; 3D rapid prototyping
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