3D neurosurgery

Stereoscopy (three-dimensional (3D) imaging) can present more information to the viewer and further enhance the learning experience over traditional two-dimensional (2D) video.

Most 3D surgical videos are recorded from the operating microscope and only feature the crux, or the most important part of the surgery, leaving out other crucial parts of surgery including the opening, approach, and closing of the surgical site. In addition, many other surgeries including complex spine, trauma, and intensive care unit procedures are also rarely recorded. We describe and share our experience with a commercially available head-mounted stereoscopic 3D camera system to obtain stereoscopic 3D recordings of these seldom recorded aspects of neurosurgery. The strengths and limitations of using the GoPro® 3D system as a head-mounted stereoscopic 3D camera system in the operating room are reviewed in detail. Over the past several years, we have recorded in stereoscopic 3D over 50 cranial and spinal surgeries and created a library for education purposes. We have found the head-mounted stereoscopic 3D camera system to be a valuable asset to supplement 3D footage from a 3D microscope. We expect that these comprehensive 3D surgical videos will become an important facet of resident education and ultimately lead to improved patient care ¹⁾.

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Lee B, Chen BR, Chen BB, Lu JY, Giannotta SL. Recording stereoscopic 3D neurosurgery with a headmounted 3D camera system. Br J Neurosurg. 2015 Jan 24:1-3. [Epub ahead of print] PubMed PMID: 25620087.

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