



Impact of 3D Virtual Reality Visualization on Patient Education, Engagement, and Satisfaction in Pre-Surgical Consultation



Use of a Surgical Rehearsal Platform and Improvement in Aneurysm Clipping Measures: Results of a Prospective, Randomized Trial



Simulation-Based Consultations and Preoperative Planning in Patients with Skull Base and Cerebrovascular Pathology



Castellanos J, et al. 360-Degree Virtual Reality Consultation for the Structural Heart Disease Patient



Intraoperative 3D Virtual Reality and CT Guidance in Pediatric TMJ Arthroplasty of Syndromic Craniofacial Dysostoses

Surgical Planning

Utilized in lieu of cadavers for anatomic and morphometric study with more in-depth statistical analysis	24%
Validated modification to supraorbital craniotomy	100%
Provided unlimited supply of specimens for surgical simulation and measurements in VR	90.6%

⁴Tai A, Sack, KD, Herur-Raman A, Jean WC. The Benefits of Limited Orbitotomy on the Supraorbital Approach: an Anatomic and Morphometric Study in Virtual Reality. Operative Neurosurgery 2019; opz201

Surgical Efficiency

Significantly reduced time per clip used	-29%(p=0.05)
Decreased total operative time	
Reduced number of clip attempts	

³Chugh AJ., Pace JR, Singer J, Tatsuoaka C, Hoffer A, Selman WR, Bambakidis NC. Use of a Surgical Rehearsal Platform and Improvement in Aneurysm Clipping Measures: Results of a Prospective, Randomized Trial. JNS 2017; 126(3):838-44.

Patient Engagement

Improve patient satisfaction and understanding	100%
Patients enrolled for surgery at Mount Sinai	90.6%
3D info led to a modification of the surgical plan	24%

³Schlachter LC, Costa AB, Bederson JB. Simulation-Based Consultations and Preoperative Planning in Patients with Skull Base and Cerebrovascular Pathology. EANS (Athens, Greece. 2016 Sept 4-8).

Patient Understanding

Higher patient satisfaction compared to prior consults	100% vs 82%
Improved patient understanding	p<0.01
Higher satisfaction with doctor communication	p= 0.01
Higher conversion rates after 360VR consult compared to pre-360VR consults	100% v 86%; TAVR; 92% vs 68%; Watchman

Castellanos J, et al. 360-Degree Virtual Reality Consultation for the Structural Heart Disease Patient. **Structural Heart: The Journal of the Heart Team** 2020; 4(3), 230-235, DOI: 10.1080/24748706.2020.1748776.

Intraoperative Guidance

Significantly reduced time per clip used	-55% (p=0.03)
Decreased total operative time	
Reduced number of clip attempts	

²Lee JC. Intraoperative 3D Virtual Reality and Computed Tomographic Guidance in Pediatric Temporomandibular (TMJ) Arthroplasty of Syndromic Craniofacial Dysostoses.

American Society of Craniofacial Surgery (Wailea, HI. 2017 Jan 24-25).